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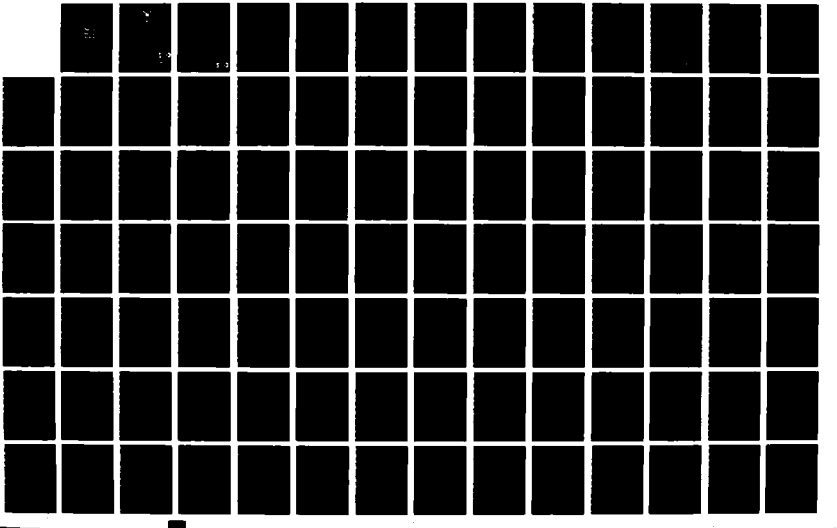

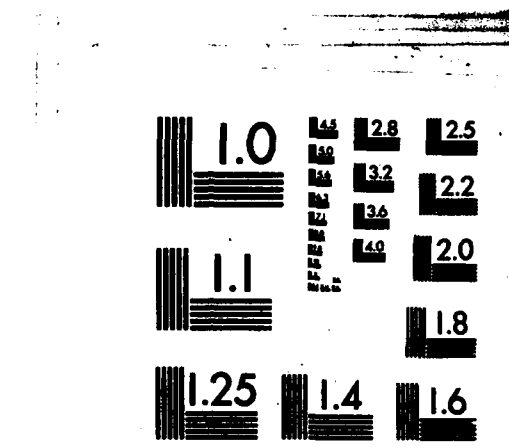

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AN INVESTIGATION OF JOINT SERVICE ACQUISITION LOGISTICS ISSUES/PROBLEMS AND AUTOMATED JOINT PROGRAM SUPPORT

THESIS

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AFIT/GLM/LSM/84S-46

AN INVESTIGATION OF JOINT SERVICE ACQUISITION LOGISTICS ISSUES/PROBLEMS AND AUTOMATED JOINT PROGRAM SUPPORT

THESIS

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

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Abstract

When more than one service is involved in the acquisition, development, operations and support of a Department of Defense program there is inherent difficulty reflected in program management. Management problems occur for many reasons, including different operational requirements and unique service procedures. Literature suggests that some management problems attributable to geographically dispersed resources, management personnel turnover and ineffective communications may be successfully overcome through implementation of a Management Information System (MIS). This thesis project was an effort to identify and validate the major Joint Service Acquisition Program (JSAP) problems and determine the current and potential use of the Acquisition Logistics Management Information System (ALMIS) to address them. Literature was surveyed and problems were summarized and developed into a questionnaire. Structured interviews were then conducted with over 100 different Air Force and civilian upper and middle JSAP managers. Many general and specific problems and issues were identified and validated using statistical and qualitative methods. General use of ALMIS to address certain joint service problem areas was confirmed. Potential use and desirable capabilities for ALMIS were also determined. Recommendations for ALMIS and a new MIS across service lines are also provided in this study.

AN INVESTIGATION OF JOINT SERVICE ACQUISITION LOGISTICS ISSUES/PROBLEMS AND AUTOMATED JOINT PROGRAM SUPPORT

I. Introduction

Purpose of Study

When more than one service is involved in the acquisition, development, and Operations and Support (O&S) of a Department of Defense (DOD) program, there is inherent complexity reflected in program management. Air Force joint service program managers must recognize and address certain problems in order to be effective and efficient. One approach for acquisition logistics management of Joint Service Acquisition Programs (JSAPs) which may address these problems involves the use of automated computer support: the *Acquisition Logistics* Management Information System (ALMIS). To date there is no document that gives a current overview of these joint service problems and the general use of a computer system to address them. This thesis will provide this overview in addition to determining potential applications or desirable capabilities for ALMIS to address JSAP problems. This research will be a useful reference for joint service program managers.

Background

Air Force managers have ongoing problems associated with Integrated Logistics Support (ILS) and O&S for Joint Service Acquisition Programs (JSAPs). By recognizing and understanding these joint service ILS and O&S problems Air Force managers may become more efficient thereby saving

the government and public money. The primary purpose for having joint service acquisitions is to eliminate unnecessary duplication of effort (3). Given that cost savings and efficiency are responsibilities of the DOD, a review and analysis of the major managerial problems associated with ILS and O&S for joint service programs is necessary. The active involvement by the DOD in improving general program management is accentuated by the Carlucci Initiatives (DOD Acquisition Improvement Program). Further evidence of the need for effective ILS is stated by the Joint Logistics Commanders:

> We perceive a well planned and executed Integrated Logistics Support (ILS) Program to be equally important in the acquisition of weapon systems and equipment as maintaining cost, schedule and performance parameters. This is particularly true for systems being developed for use by more than one service. Continuous attention and commitment to ILS planning and adequate funding by all participants are absolutely essential if we are to field systems which are supportable and can be maintained by the intended users [16].

As a program evolves from a concept or operational need, it goes through several phases during its life. These program phases are shown below with their relationship to ILS, O&S and the primary managers (see Figure 1).

The separate and collective managerial responsibilites of upper and middle managers assure the smooth transition of JSAPs from the acquiring and developing commands to the using and supporting command. Upper managers in a USAF acquisition include the:

* Commanders (Major Commands, Divisions, or Centers)
* Air Staff
* System Program Office (SPO) Director
* Program Element Monitor (PEM)
* Systems Staff Officer (SYSTO)

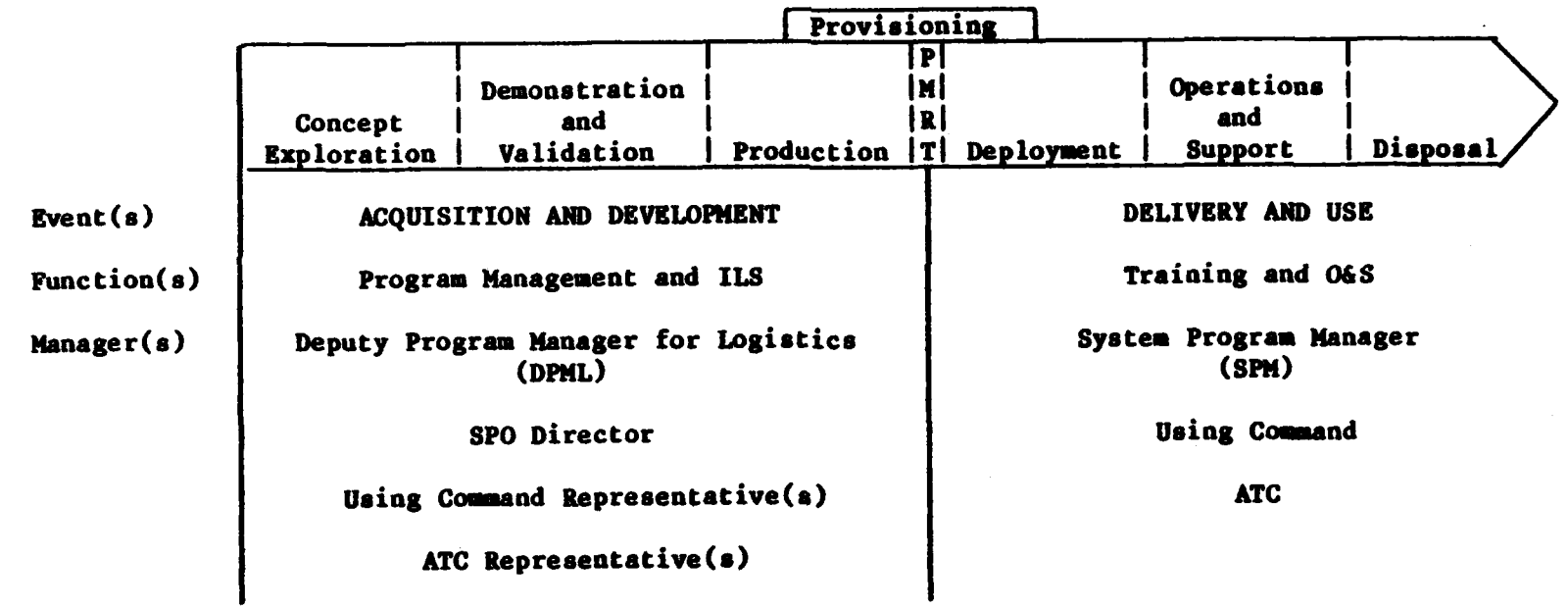


Fig. 1. Acquisition Cycle/Functional Managers

Middle managers include the:

* Deputy Program Manager for Logistics (DPML)
* Integrated Logistic Support Manager (ILSM)
* System Program Manager (SPM)
* Air Training Command (ATC) representative
* Using command representative

A team effort is necessary by the SPO Director, DPML, SPM, ATC and using command representatives to successfully acquire, provide training, field, operate and support a joint service program being managed by the USAF. In the beginning of a program the DPML has functional authority for ILS. That is, in conjunction with the using commands and the SPO director, he is usually more actively involved than the SPM in the day-to-day ILS requirements definition and determination for the program. The SPM may not be appointed until much later in a program than the DPML (3).

There are different managerial levels and personal responsibilities that affect the way systems are managed at different phases in the program. This thesis is therefore potentially beneficial to system operators, acquisition and logistics management specialists, middle and upper management. Better awareness by different management levels of the major problems related to joint service ILS and O&S will help the Air Force managers to achieve the overall cost savings that joint service programs are intended to produce.

A more thorough discussion of the responsibilities, functions and interactions of the DPML and SPM is provided due to their proactive managerial roles. They have primary responsibility for ILS and O&S, respectively.

The DPML. The DPML must assure that ILS considerations relating to the total supportability of a system are addressed early in a program's life. He is the primary focal point of Air Force Logistics Command (AFLC) through the Air Force Acquisition Logistics Center (AFALC) for coordinating logistics requirements during the acquisition and development of a system. He is also reponsibile for obtaining user inputs and putting these planning considerations into the Integrated Logistics Support Plan (ILSP) and Maintenance Support Plan. In the case of joint service programs, the DPML inputs ILS requirements into the Joint Logistics Support Plan (JLSP).

The DPML does not plan alone. He has special advisors who assist him in all activities including Life Cycle Cost (LCC) determinations which are part of the budget estimate and subsequent funding for the system. These cost analysts attempt to evaluate the expected costs associated with the entire program from beginning to end. When working in a SPO environment for major programs, a DPML has contracting experts, technical or engineering assistance and configuration control personnel for support. Knowledgeable staff assistance is readily available to the DPML in a conventional SPO for major programs (5).

Co-located technical management support in a conventional SPO is a sharp contrast to the managerial environment of many joint service programs. Joint service programs are often managed in a "basket SPO" environment (5). A basket SPO may contain many programs with more decentralized resources than regular SPOs. It is common for one DPML to be managing ILS requirements for several joint service programs (5).

Instead of a DPML, an ILS manager may be in charge for less-than-major programs (5). The technical expertise that a joint service program DPML or ILS manager needs may not be co-located with him in the basket SPO (5). These and other differences peculiar to joint service programs will be discussed in more detail. These issues are important because they create potential problems. The DPML works as the primary ILS manager in a SPO. The SPM is the active O&S manager at the Air Logistics Center (ALC). He reports through AFLC, not AFALC as does the DPML. Cooperation between the DPML and SPM is imperative for a successful program.

The SPM. The SPM is defined as: "The person or organization having management responsibility for a specific weapons system [8:681]." And, "The individual appointed by AFLC to assure that AFLC logistic participation and support capabilities are in consonance with system program objectives [8:681]." The Army defines the SPM as:

> An individual designated by the Secretary of the Army to exercise centralized management at Department of the Army level for projects . . . The SM exercises coordination and directive authority over non-material oriented activities associated with the total system development and operational control over material development itself [8:681].

Justification for Study

The importance of this research effort is emphasized in the following passage from the AF Compendium of Research Topics:

> More and more items for the Air Force are being procured through joint service acquisition programs. Current multi-service publications provide the executive service the

> authority to manage such programs under the policies and procedures of that service. Because of fundamental parochialism in adhering to these policies, these programs often have serious obstacles to overcome in order to provide equipment logistically supportable in each service. A study is needed to define these obstacles and find adequate methods to resolve them (24:58).

Air Force managers involved in JSAP management have separate and collective managerial responsibilities that ultimately affect operational system performance. Their separate responsibilities are defined by their individual job descriptions and responsibilities to parent commands. Their collective responsibilities are those that require team interaction between different commands, services and levels of management. This thesis is potentially beneficial individually and collectively to system operators, trainers, using command representatives, acquisition and logistics management specialists, and middle and upper management. Without adequate coordination of joint service program requirements and needs system operation may be severely degraded (5; 13). Higher program costs may result if ILS matters are not adequately addressed early in a program (6; 10; 13). The overall goal of this thesis is to provide an overview of JSAP problems and current and potential applications of the Acquisition Logistics Management Information System (ALMIS) to address them.

This study will identify persistent joint service general, ILS, and O&S problems and the current and potential use of ALMIS to address them. Findings from the research will result in some recommendations that focus on the use and development of ALMIS. Other recommendations will

also be made based on the research findings. Literature suggests that the problems associated with the integration of information between all levels of management, personnel turnover and geographically dispersed resources may be successfully overcome by the use of Management Information Systems (MISs) (11; 20; 22; 25). ALMIS is currently being used for acquisition logistics management of over 50 joint service programs (1). The general application of ALMIS for addressing the joint service problems identified in the literature will be investigated.

Problem Statement

For Air Force managers to be effective in managing JSAPs, good communication must exist between the developing, using, and supporting commands. Literature suggests that coordinating joint service requirements is difficult due to different service procedures, regulations, management personnel and their unique philosophies and practices. Management personnel turnover and geographically dispersed resources also complicate joint service program management (10; 11; 13; 20; 22; 24).

The Acquisition Logistics Management Information System (ALMIS) was developed for use by Air Force acquisitions logistics managers. Future plans call for increased use by SPMs and upper management (2). This study will identify the persistent general, ILS and O&S managerial problems associated with JSAPs and determine the current and potential use of ALMIS to address them.

The following research questions will be investigated to support the research project.

Research Questions.

1. What are the major JSAP problems?
2. What are the current and potential applications of ALMIS for addressing identified JSAP problems?

The following investigative questions will be explored in this research.

Investigative Questions.

1. What are the general JSAP problems?
2. What are the major ILS problems associated with JSAPs?
3. What are the major O&S problems associated with JSAPs?
4. What identified JSAP problems do Air Force managers address using ALMIS?
5. What are the potential applications of ALMIS for addressing identified JSAP problems?

Scope and Limitations of Study

ALMIS was designed as a general acquisition logistics management tool and was not specifically intended to address persistent joint service problems. That is, ALMIS is being used for management of joint service programs, but this is not ALMIS' primary purpose.

This research focuses on identifying the persistent JSAP general, ILS and O&S problems and an overview of ALMIS in a literature review. These problems will be validated and the general use of ALMIS to address

them will be identified by interviewing selected upper and middle managers of Air Force (AF) lead JSAPs. The general use of ALMIS directed at the identified JSAP problems will be investigated through structured interviews and literature.

Problems will be identified and described from primarily an Air Force perspective. This study will not become involved in research that looks at the potential use of ALMIS or a similar computer system by other services. Also, ALMIS will not be evaluated qualitatively as a Management Information System (MIS). The focus is not on how good a MIS ALMIS is, instead the focus is on what its current and potential use is for JSAPs.

Methodology

JSAPs managed by the Air Force have persistent general, ILS, and O&S problems that must be considered and addressed by Air Force managers in order for program management to be effective and efficient. A description of these problems, what is being done, and what may be done to solve them is needed (24). This research will identify and investigate these problems and the current and potential use of ALMIS to address them.

This research will be accomplished by a combination of a literature review and structured interviews.

The steps necessary to accomplish this research are listed below:

1. Accomplish literature review (summarize problems).
2. Develop structured interview survey based on problems identified in the literature review.

3. Conduct structured interviews.

4. Analyze findings.

5. Develop conclusions and recomendations.

The literature review will provide:

a. An overview of the persistent JSAP general, ILS, and O&S problems.

b. A basis for understanding the use of ALMIS and MISs.

The structured interviews will validate the problems identified in the literature and will also identify other problems experienced by the respondents. An investigation of the general use of ALMIS to address the problems identified in the literature will be performed. Potential JSAP applications for ALMIS will be determined.

The structured interview will be conducted primarily with Air Force and civilian JSAP middle and upper managers now listed on the ALMIS database. Additional interviews will be conducted with managers knowledgeable of JSAPs and/or ALMIS.

For research purposes, the middle managers using ALMIS are considered the DPMLs, ILS managers, and SPMs. The upper management users of ALMIS are the SPO Directors, Air Staff, Vice Commander and Commander AFALC, the PEMs, and SYSTOs of individual programs.

The results of the literature and structured interviews will be detailed in the Analysis and Findings section. The output of the Analysis and Findings section will be contained in the Conclusions and Recommendations section.

Assumptions

The purpose of this research is to determine the current and persistent general, ILS and O&S problems for JSAPs and the general and potential use of ALMIS to address these problems. We assume that because ALMIS is being used for JSAP acquisition logistics management it addresses some problems that JSAPs experience.

ALMIS is being used by the Air Force managers of over 50 JSAPs (1). Therefore, managers are using ALMIS to perform some JSAP program management functions. The use of ALMIS to address JSAP problems is not ALMIS' overall or primary purpose. The researchers assume ALMIS' function as a JSAP database has evolved aside from other ALMIS capabilities. It is also assumed the use of ALMIS as a management approach to JSAP problem solving generally is more coincidental than intentional. Nonetheless, the identification of which JSAP problems/ issues ALMIS is addressing, and which ones it should/could address, is worth investigating. It is assumed that some of the JSAP problems that are not being addressed by ALMIS may be potential applications or desirable capabilities for ALMIS.

It is not the purpose and it is outside the scope of this research to evaluate or determine any level of effectiveness for ALMIS' use in solving JSAP problems. Again, the focus is on ALMIS' general and potential applications for addressing JSAP problems. However, once the data are gathered and analyzed, certain inferences pertaining to the effectiveness of ALMIS may be made. The authors emphasize that if any such inferences are made about the effectiveness of ALMIS they will result only as a secondary spinoff from the main thrust of the research.

It is also assumed that the respondents which were identified on the ALMIS database (associated with JSAPs) are the best source of information concerning JSAP problems and the general use of ALMIS to address them.

For purposes of this research effort, the authors have categorized managers into either upper or middle management. This may not accurately reflect true management levels in all cases, but was done in order to group the respondents' data. Air Force managers are assumed to include military and civilians working for the Air Force.

II. Literature Review

Scope of Literature Review

This literature review begins with a summary of general JSAP problems to facilitate better understanding and make a distinction between them and the specific ILS and O&S problems associated with joint service programs. The specific ILS and O&S problems are then discussed followed by an overview of ALMIS. Included under the ILS problems section is literature on JSAP Communications-Electronics (C-E) programs due to their unique JSAP considerations. Characteristics of general Management Information Systems (MISs) and ALMIS' evolution, development, description and limitations will then be delineated. This overview of ALMIS provides a basis for understanding and investigating current and potential applications of ALMIS for JSAPs.

The identified ILS and O&S problems are summarized at the end of each section. A summary of general problems that impede effective and efficient JSAP management is now provided to give the reader a broad perspective.

Summary of General JSAP Problems. The following JSAP management problems have been identified in the literature and are summarized here to make a distinction between general problems and specific ILS and O&S problems for JSAPs.

Interservice Communication. Literature suggests that there are JSAP problems due to ineffective interservice communication. This general issue can be attributed to differences in terminology, weak

interservice/personnel relations and parochial ways of expressing and attaining service needs (3; 5; 9; 10; 13; 16). Additionally, communication problems are often compounded by other JSAP issues/problems which management addresses.

Coordinating Joint Service Requirements. Problems associated with obtaining and maintaining agreement on joint requirements is the number one problem (13). Changing requirements also produce problems. Service-unique requirements driven by the different service missions and operational concepts also make requirements coordination difficult (3; 5; 9; 10; 13; 16).

Adequate Planning. JSAPs experience problems due to ineffective and inadequate planning early in a program. Failure to plan for adequate logistics support may increase program costs and result in fielding a systems that is not logistically supportable. Many JSAP problems may be avoided through adequate early planning (3; 5; 6; 10; 13).

Geographically Dispersed Resources. A joint program often experiences problems which are caused by geographically dispersed resources. Physical separation of personnel and offices across service lines, including separate logistics support locations and different contractor sites appears to hamper management of JSAPs. This general JSAP issue also contributes to some of the problems related to interservice communication (3; 5).

Management Personnel Turnover. Some of the problems associated with management of JSAPs may be due to the high turnover of management personnel. The personnel policies of the military services often result in managers changing jobs/assignments after relatively short periods of time (3-4 years). This high turnover rate contributes to a loss of experience and continuity within a joint program environment and can have an adverse impact on management of JSAPs (3; 5).

ILS Problems

The discussion of ILS problems is divided into two sections. These are: (1) guidance and regulations and (2) funding and standardization. Several specific problem areas will be reviewed under these two headings. These problems are summarized at the end of this section.

Guidance and Regulations. One problem associated with JSAP management pertains to confusion over the use of the wide range of documents available for guidance. For these references, different JSAP managers often select the ones that best meet their own requirements (9). Top level ILS program guidance is found in DOD regulations and instructions. Each service has separate additional references.

Overall DOD guidance for ILS is found in DOD Directive (DODD) 4100.35, Development of Integrated Logistics Support for Systems and Equipment. United States Air Force (USAF) ILS guidance is found in Air Force Regulation (AFR) 800-8, Atch 1, ILS Organizational Elements. This AFR establishes USAF ILS policy and delineates the criteria for application of ILS throughout the life cycle of USAF systems and equipment.

The governing regulations for the Air Force for developing ILS plans is found in AFR 800-8, Atch 3 Integrated Logistics Support (ILS) Program. This regulation is used for reference to write the Integrated Logistics Support Plan (ILSP). AFR 800-2, Acquisition Program Management and AFR 800-10, Management of Multi-service and Agency Systems also govern USAF joint service acquisitions. Other relevant multi-service guidance is found in DODD 5000.1 (USDRE), Major System Acquisition and DOD Instruction (DODI) 5000.2 (USDRE), Major System Acquisition Procedures.

The use of available standard guidance in the management of joint service programs presents some service-unique problems. The wide range of documents used by the different services to manage multi-service programs poses a number of potential problems for effective ILS. The uniqueness of acquisition programs within each service has created a situation in which separate commands use different documents for guidance. Although a wide range of documents does not in itself create interservice acquisition problems; according to Cox and Wile's thesis on Problems in the Multi-Service Acquisition of Less Than Major Ground Communications Electronics Systems, the vagueness, generality, and lack of standardization of these regulations have created substantial confusion (9:41).

Another apparent problem has been the application of DOD regulations to individual service needs. Some specialized application of the regulations is necessary to allow flexibility in managing acquisition programs. The problems which have surfaced are due to the severity of tailoring the regulations, and incorrect assumptions concerning how other services interpret the guidance (11:102).

The Standard Integrated Support Management System (SISMS) Manual was created to provide standardization and guidance for joint service acquisitions. The associated USAF regulations are AFR 800-24, Parts Control Program (PCP), and Air Force Logistics Command Regulation (AFLCR) 65-5, Air Force Provisioning Policies and Procedures. Surveys by Cox and Wile indicate there were several shortcomings in applicability and use of the SISMS manual. Two overriding problems were identified with SISMS: (1) many individuals associated with multiservice acquisitions were either unaware of the SISMS manual, or (2) did not consider it an important document for guidance or clarification (interpretation) of joint service policies and procedures. This latter point could be attributed to the perceived generality or vagueness of the SISMS manual (9:41).

Guidance for Communications-Electronics Programs. Communications-Electronics (C-E) JSAPs are a certain kind of joint service program that has experienced ILS problems. DOD acquisition policy on Command and Control (C^2) communications-electronic acquisition is found in DOD Regulation (DODR) 5000.2, Major System Acquisition Procedures. According to the Armed Forces Communications-Electronics Association (AFCEA) report for the DODR, many of the problems associated with C^2 acquisition are due to the guidance found in DOD 5000.2. The unanimous finding of the AFCEA study was that for C^2 systems, an adaptive approach ("build a little, test a little") to the design, testing, and evaluation was needed in acquiring the

required capabilities of C^2 systems. This approach has not been fully or eagerly adopted by the DOD (28:83). Part of the reason appears to be in the fact that C^2 acquisition policy in DODR 5000.2 was hastily written (28:38). Another finding of the AFCEA study concluded that the C^2 acquisition policy DODR 5000.2 was not implemented with any kind of required follow-up guidance and educational material. If an adaptive developmental approach is to be properly implemented within the DOD, follow-up guidance and educational material appears necessary. The AFCEA study team recommended changing the guidance in DODR 5000.2 to provide continuous feedback from the field (lessons learned) during the adaptive process. Such feedback can help to shape the final version of the policy (4:III 6, 2a).

Managers of C-E JSAPs are required to know a myriad of DOD and C^2 regulations in order to effectively manage, communicate, and incorporate ILS in JSAPs. Problems and misconceptions related to ILS for C-E JSAPs and other types of joint service programs have led to confusion and high level concern over the guidance and policies of joint service acquisitions (9).

Planning Guidance. The major management problems experienced by joint service programs were frequently caused by inadequate planning and coordination (13). Early planning is needed to insure successful implementation of ILS requirements.

The planning for ILS must start with two considerations. These are: (1) the system operations concept, which identifies how many items are to be used and where they will be located, and (2) what maintenance

concept will be used at these locations, i.e., two levels, three levels or more. Test and support equipment must also be delineated. All of these factors must be included in the maintenance support plan (7).

Perhaps the single most effective planning document for joint service programs is the Joint Logistics Support Plan (JLSP) (5). The JLSP provides the overall guidance necessary to implement joint ILS program objectives. The JLSP specifies the responsibilities of the executive service and the users, and details the specific responsibilities of each command to achieve joint service program objectives. Included in the JLSP are Memoranda of Agreements (MOAs) between commands. Special review groups and boards are chartered to coordinate joint service requirements. These charters are also described in the JLSP. The JLSP is intended to be a total planning document.

Additional problems occur if joint service requirements are not fully coordinated and described in the JLSP. There is no viable means to enforce the standardization and adherence to provisions of JLSP guidance and regulations (4). When overlooked requirements surface later in the acquisition cycle, their timely and efficient implementation is difficult at best (5; 6).

Funding and Standardization. Funding for systems acquisitions is a major ILS consideration. Total Life Cycle Costs (LCCs) are now estimated before programs are approved by headquarters. Planning for the availability of funds to cover the LCCs is a critical element for successful ILS. This importance is recognized by Mr. Hurwood, Air Force Logistics Command (AFLC/MMA), the former acting director of the

Equipment, Munitions, and Electronics Division of HQ AFLC in his briefing to Mr. Lloyd Moseman, Deputy Assistant Secretary of the Air Force, Logistics, in July, 1983:

> Primary user logistics support refers to the identification and consideration of AF Logistics requirements during the acquisition process. DOD instructions currently state the inventory management procedures of the executive service (primary inventory control point) apply. For instances where the AF is the sole or primary user of the equipment or system but another service is designated Acquisition Agency, it is imperative that our peculiar support requirements be made known early in the program definition. We have re-emphasized to our Deputy Program Managers for Logistics (DPMLs) the need for aggressive involvement in the planning process. We view this issue as a continuing educational requirement for all participants [27:4].

Delivery of ILS products including spares, technical orders, training, and test and evaluation are predicated on the availability of ILS funds (6). If ILS funds are cut early in the program by the SPO Director to compensate for other immediate program needs, future ILS needs may be severely affected. Often in the past, the philosophy for dealing with ILS problems has been the "band-aid" approach (6). This means that when overall system ILS considerations are ignored early in the acquisition process they must be compensated for later in the program at potentially greater cost.

Some joint service programs still have difficulties with the inter-service transfer of funds which use the Military Interdepartmental Purchase Requests (MIPRs). These problems and other apparent difficulties associated with different financial systems of the separate military services is described in the thesis by Cox and Wile:

> One of the apparent problems in funding is that there appears to be a lack of standard procedures for transferring funds. Three basic approaches are used. Items and/or initial spares may be prefunded. The advantage of prefunding is that the lead service has working capital, which would be especially important during the acquisition cycle. However, there have been cases where this prefunding has resulted in the using service paying twice for initial spares. The second method used for transfer of funds is the Military Interdepartmental Purchase Request (MIPR). The MIPR results in a transfer of funds prior to an item being placed on order. Problems do occur with the MIPR. Apparently, if the Air Force includes several items on a MIPR sent to the Army, the Army must manually convert the items to a format which can be tracked during purchase. This is apparently a computer problem [9:108].

Mr. Hurwood further supported the need for improved standardization in funding practices in the Moseman briefing:

> This initiative addresses the formatting of Military Interdepartmental Purchase Requests or MIPRs. The Army automates their processing system to accept only single line items. The AF practice has been to use a multi-line format as much as possible. The result was that either the primary or secondary service expends the additional effort of manual conversion to a single line format. The Army's CECOM had refused to accept SM-ALC's multi-line formatted MIPRs for this reason. The issue was elevated to command level for resolution. The 6 May 82 minutes of the Defense Integrated Material Management Panel states the Army agreed to provide support to the customer in this instance, even if the processing must be manual [27:4].

ILS is potentially affected by one service (user) discontinuing involvement in any phase of the program. This can severely impact the funding stability of a program:

> Even when firm user needs exist, there is always the possibility that one of the participants may unilaterally eliminate or reduce its number of production units, thereby increasing unit price to the other participants. There is no universal solution to this problem. However, one joint

program manager was able to avoid the problem by negotiating a joint program procurement commitment. The commitment obligated each participant to procure a specified minimum quantity or pay the increase in unit procurement costs suffered by the other participants becuase of reductions in the total quantity of units procured [17:7-2].

Other problems in joint service program funding frequently arise from differences among the services in the their uses of various categories of funds or in funding responsibilities within a service (17:92). The following examples describe these funding category differences:

* The Army frequently buys procurement data with development funds, whereas the Air Force normally buys reprocurement data with production funds.

* The development and procurement of technical orders and technical manuals are normally funded entirely with procurement funds by the Navy, but separately by development and procurement funds by the Air Force.

* In the Army, the development, testing and procurement of support items are normally accomplished concurrently with development, testing, and procurement of the primary system. Another service may prefer that development, testing, and procurement of support be delayed and much of the initial support be provided by contractors.

* In the Army and Navy, all funding for the development and procurement of a new system and its support requirements is provided by the material developer, the Department of the Army Materiel Development and Readiness Command or the Navy Materiel Command. In the Air Force, funding responsibility is split between the Air Force Systems Command, which funds procurement of most systems support, such as initial spares, depot facilities, and initial contractor support, and AFLC which is responsible for funding of logistics support after Program Management Responsibility Transfer (PMRT) [17:7-2, 7-3].

Some joint service problems related to standardization are described by Lieutenant General Dickinson, U.S. Army:

For joint programs, resolving the associated issues often cannot be accomplished by the program manager and must be referred to higher authorities thus making management of joint service programs more complex. When a Service/agency is tasked to develop and acquire a specific item of equipment on behalf of all users, the developing/acquisition Service/agency uses its own rules/procedures [15:74].

Summary of Identified ILS Problems.

The following list is a compilation of the identified ILS problems for JSAPs:

Guidance and Regulations

* Wide range of documents/references
* DOD regulations selected and tailored to meet service needs
* Use of SISMS
    ** Rarely referenced
    ** Managers unaware of SISMS
    ** Considered unimportant by managers
* Guidance for C-E programs (Data Systems)
    ** C^2 Acquisition policy hastily written
    ** No follow-up policy for C^2 acquisition
    ** Vagueness, generality, and lack of standardization
* Planning guidance
    ** Joint requirements not fully detailed in JLSP
* No viable means to enforce standardization and adherence to guidance

Funding and Standardization

* Availability of ILS funds
    ** "Band-aid" approach costs more in long run
* Intersevice transfer of funds
    ** Inadequate procedures to transfer funds
* Various funding category differences between services
* Problem resolution at lower levels is difficult

High level attention from Congress, DOD, and the Joint Logistics Commanders has been directed toward solving some of the procedural and standardization problems that inhibit efficient ILS for joint service

programs. The importance of effective planning and ILS is fundamental to the successful O&S of joint service programs. The next section addresses USAF and Army O&S management issues. This section discusses planning (provisioning) and then gives an overview of O&S problems and considerations for specific discussion.

Discussion of the Major Joint Air Force and Army Operations and Support Management Issues

In the conceptual phase of a program a decision is made by the Department of Defense to designate an Executive Agent (EA) for the program. This determination is made based on the variables of the program. Sometimes the decision is made based on cost considerations, i.e., which service is paying the most. In other cases technical expertise is considered the major determining factor. If the item is being developed by a joint service process, usually the overall intention is to save money. The service that is perceived to have the best capability and the most need is often selected as the EA (3). The Marine Corps often relies on other services to be the EA for it's equipment acquisitions (14).

The Planning Conference. Once an EA selects a contractor then a provisioning conference takes place. Many problems occur when considerations are overlooked at this phase in the program (3). "Provisioning" is defined and described as:

> A management process for determining and acquiring the range and quantity of support items necessary to operate and maintain an end item of material for an initial period of service.

1. The provisioning process begins at the time a production contract is awarded for an end item of material and continues through the period of time required to have support items shipped by manufacturers and suppliers.

2. Initial provisioning (the first time provisioning for a new end item), follow-on provisioning (a subsequent provisioning of the same end item from the same contractor) and reprovisioning (a subsequent provisioning of the same end item from a different contractor) are specific types of provisioning.

3. Provisioning normally does not include the acquisition of support items for replenishment purposes or to augment existing stocks of items already established in the wholesale supply system (AFR 65-2).

The system for selection of new and/or peculiar items and quantities of such items (such as spares for aircraft, missiles and support systems) required to support and maintain an end item for its initial phase of service (AFLCM 401-1) [8:360].

At the provisioning conference all the variables relating to the maintenance and support requirements of a joint service program are addressed. One problem arises at the provisioning conference when a service is not adequately represented or the using commands are not present. Sometimes a SPM attends the conference without the technical support he needs to assure his program needs will be met. Experts in supply systems, technical orders, spares engineering, engineering specialists, and all the intricate details including source coding and material management coding of a maintenance management program should be present at this conference (26). If the SPM goes to the conference alone or underrepresented, backbriefing the absent technical staff could be exhausting and could result in omissions with ominous consequences. The SPM is usually involved at a high management level in maintenance

activities anyway. He may not become involved in the details at the operational level until there is a problem. This may be part of the problem (26).

The importance of attending the provisioning conference with adequate technical representation is seen in the following example, which had a very serious effect on O&S.

> After funds were provided, Air Force gave little attention to the program until problems began to develop. The first key problem identified was that the Sacramento Air Logistics Center (SMALC), the Air Force control point for the initial spares for the AN/TSC-94, did not attend the provisioning conference. As a result, SMALC had little idea of what types of spares would be needed, or how many would be required [9:3].

The following considerations are discussed in detail at provisioning conferences and subsequent maintenance management working group meetings. This overview shows the areas of required technical support the SPM should have at the provisioning meetings and other working group meetings. Additionally, all the participants need accurate minutes of the conference. Comprehensive planning and follow-up is essential. Considerable discussion is possible on each of these subject areas. A general analysis of these seven problem areas will be presented as they relate to O&S.

Overview of O&S Problem Areas and Considerations. O&S considerations are increasingly important when we realize that the majority of a program's costs occur in the O&S phase (23). Some particular and recurring joint service problem areas attributable to different

operations and management concepts by Army and Air Force are listed below.

1. Levels of maintenance/support considerations

    * Training materials/test equipment
    * Training Orders and Technical Manuals
    * Contractor versus Organic
    * Technical data
    * Configuration management
    * Contingency Planning

2. Inventory Control

3. Cost Reimbursement

4. Spares

5. Warranty coverage

6. Scheduling

7. Unique problems with Communications-Electronics Systems (3; 5; 14; 26)

Other O&S problems result from the structure of the supply systems. Different support concepts are driven by the levels of maintenance provided and the type of repair capability that is available. These factors have a direct effect on the Mean Time To Repair (MTTR). As the MTTR increases, the overall effect is lower system availability. The structure of maintenance organizations also affect the support concepts that exist for the Army and the Air Force. This is a particular problem the joint service acquisition manager must confront on a continuing basis to assure system supportability.

Levels of Maintenance/Repair Capabilities. The Army has a very specific and rigid definition of their repair capability at each level. Army maintenance personnel are allowed specific removal, replacement and repair activities at each level of maintenance. As the maintenance levels increase the repair capability becomes gradually more sophisticated (see Table 1). These responsibilities are described in technical manuals and training materials. In contrast, the Air Force is oriented toward removal, replacement and repair of equipment at the lowest maintenance level possible (3). This results in a difference in the way techical orders and technical manuals are written. If the Army is the EA, then technical manuals and training material will be written to reflect Army maintenance philosophies unless otherwise agreed upon at the provisioning conference (3). If the Air Force fails to have these materials reflect their training and maintenance needs, then a fielded system may not be operable or supportable (5).

The Army frequently relies on contractor repair capability of equipment for long periods of time. During provisioning, the discussion must consider the separate needs of each service and purchase of special test equipment for use by the maintenance activities. Contingency planning is very important. Contract repair and additional test equipment requirements should be written into the contract as a contingency for the Air Force to supplement organic repair because of potential problems due to changes in requirements. Another option is to have total contract repair. All of these and other details are documented in the Maintenance Support Plan (3). Failure to provide this alternative may also result in the fielding of a system that is not supportable (5).

TABLE I

Comparison of Maintenance Levels
From the Air Force Perspective

Army	Air Force
(L) 1. Operator (Field) (D) Simple on-site remove/replace capability. No special diagnostic or test equipment.	
(L) 2. Organization (D) Limited remove/replace. Limited diagnostics and test equipment. (Note: Recent Army move to combine levels 1 and 2)	(L) 1. Organizational (Line) (D) Remove and replace capability. Limited diagnostic and test equipment, but equivalent to Army's first two levels.
Centralized Repair Activity	
(L) 3. Direct Support (D) Regional Center. Tear into equipment. General repair capability. (Replace components, engines.)	(L) 2. Intermediate (D) Sophisticated repair capability. Equivalent to Army levels 3 and 4.
4. General Support (D) Regional Center. More sophisticated technical repair. Limited overhaul capability.	
(L) 5. Depot (D) Focal point for order/ship/storage delivery of equipment. Sophisticated repair capability.	(L) 3. Depot (Wholesale) (D) Control point for order/shipping/storage. Organic repair capability.
(3; 5; 14; 26)	(L) Level (D) Description

The Army has a practice of field test and evaluation for two years prior to printing their final technical manuals, training materials and other maintenance support materials. The Air Force prefers to have final technical orders, training materials and technical data available upon receipt of the system. These differences are due to reliance on government versus contractors for printing of documents. These differences must be considered at provisioning, and could present problems if they are overlooked. Again, a system could be delivered that is not operable or supportable if this documentation is incorrect, inadequate, or not available in adequate format (5).

Depending on the type of repair activity (contractor vs. organic), configuration control of system repaired items is significant. The repair and replacement of components and parts in a system is sometimes accomplished with interchangeable parts (from one system to another). Frequently, systems have very different internal configurations based on their operational needs. Failure to keep accurate records of the special parts introduced into a system may create a serious maintenance problem. Accurate record keeping is known to be important, but it is not regularly practiced by joint service users and managers. As a result, repair time ultimately increases and system support gets more difficult as configuration management is ignored (5).

Inventory Control Procedures/Supply Systems. The inventory control agencies for joint service programs are designated by the DOD. These are either the Primary Inventory Control Activity (PICA) or Secondary Inventory Control Activity (SICA). A Depot Maintenance Inter

Service Agreement (DMISA) if needed is developed between services and the PICAs and SICAs to enable one service to repair another service's equipment. Delivery of needed parts, spares and equipment may be delayed if support agreements are not complete and thorough.

PICA is defined as "the military service designated under this program as the single activity within the DOD responsible for providing material support under this program (AFLCR 400-21, DARCOMR 700-99/ NAVMATINST 4790.23A/MCOP4410.22A, DOD 4160.21-M) [8:613]." SICA is defined as "the military services receiving material support under this program from the PICA for selected logistics functions [8:613]."

There is a coordinated process that develops from the user level up through the maintenance levels, eventually to the SICA and PICA and back down to the users for wholesale supply support.

"Wholesale level of inventory" *is defined as:*

> Inventories, regardless of funding sources, over which an inventory manager at the national level has asset knowledge and exercises unrestricted asset control to meet worldwide inventory management responsibilities [8:744].

The original interface is always with the parent service inventory control activity. The SICA has an initial five year requirements projection that is updated periodically (sometimes quarterly). The SICA also directs the SICA user where to ship parts and equipment. (It is estimated that approximately 10% of the overall parts being supplied are for joint service programs.) There are a variety of criteria that relate to the depot maintenance source of repair decision. These include evaluation of cost, availability, accessibility and

transportation factors. Guidance for this decision is found in AFLCR 66-75, Depot Maintenance Interservicing. This source of repair decision has a direct effect on the O&S of a system.

There is a national stock number that is the same for all identical parts, but to assist managers in delivering the maintenance support required at each level, there is a Source Maintenance Recoverability (SMR) code. This is a five digit identifier for all supply items. In order to control and manage the inventory requisition and supply processes between services there is a special identification number for parts and equipment. One problem occurs because the Army has different stock numbers for its normal equipment than the other services. To work around this difference a Standard Interservice Agency Serial Control Number (SIASCN) was developed as an interim solution. Until recently (1983) problems existed with the automated processing of this number between the Army and Air Force computer systems. There are still problems with labeling equipment, spares, and consumable and other non-consumable items with the SIASCN. The Navy Data Systems are not programmed to accept SIASCNs until 1985/1986. This will be a problem for any programs shared with the Navy (5). This is an ongoing issue for management. This is partly a configuration control responsibility. Particular responsibility to monitor the accuracy of this code should be assigned and monitored before, or during provisioning. It could begin early in the contracts by the contractor if it is considered early enough by the DPML and SPM. During initial support phases of a program, when SIASCNs are used, problems with repair and return of investment

items will be experienced when initial depot repair is to be done on contract (5). After a system is fielded, part number accuracy should be monitored to assure supportability (14).

Cost Reimbursement. The timely delivery of needed support equipment from the ALCs to the users is also contingent upon the efficient transfer of funds (5). The separate services provide funding for the depot repair capability. When depot repair/replacement is being accomplished by another service then money is sent to the service doing the work by a Military Interdepartmental Purchase Request (MIPR). If there is a total contractor repair agreement then the Depot pays for the maintenance. For non-contractor repair, the Air Force pays for maintenance being performed at the Army levels 4 and 5 (2 highest levels). This is sometimes a point of contention between commands because the Air Force perceives level 4 of the Army as an intermediate capability, which it (the Air Force) normally pays for itself and expects the Army to do the same. Still, the Army requires reimbursement for level 4 maintenance. In the past, this difference in interpretation produced maintenance delays (26). All of these special funding arrangements must be clarified at provisioning and monitored during system operation to assure effective management (26).

Spares. Funding for spare parts (initial and follow-on) is sometimes a problem because the Army normally relies on contractor repair. If the Army is the EA, the Air Force must be sure to specify the quantity of initial and follow-on spares required to fully support

the system. If the Air Force is using organic maintenance then special test equipment may also be necessary. These items must not be overlooked at provisioning and also must be monitored during system operation (14). An example of a problem with spares is seen as Mr. Jones from HQ AFLC describes the support system and a problem that resulted due to lack of spare parts.

> At its best, it is confusing to those working in the acquisition community. At its worst, there are support delays and costly 'work-arounds.' In one case, the AN/TSC-94 Super High Frequency Satellite Communications Terminal was delivered from the contractor and placed in storage because it was not logistically supportable [9:2].

Warranty Coverage. Equipment purchased by the government is required by Congress to be under warranty from the vendor. This includes meeting product performance specifications and materials and workmanship guarantees (Public Law 98-212, Section 794). If a warranty exists on a system or sub-system it may expire before it is used. In the past the Army has not required warranties on all their systems or sub-systems. When vendor or contractor repair exists then the full benefit of warranty coverage should be taken. Special arrangements may be required if the repairing activity is not the vendor or contractor (i.e., 3rd party or organic). Whenever possible, the full benefits of warranty coverage should be exercised. This should result in improved system reliability and a reduction in system support costs (14).

Scheduling. The SPM and DPML must be aware that lead times for activities are not the same between services. The AF is often able to staff matters faster than the Army. This is because the Army has many

staff offices to coordinate with for every support function. Scheduling and schedules made by the Air Force must consider the staffing process of other services in order to generate realistic schedules, and assure effective management (14, 26).

Communications-Electronics (C-E) Systems. Some specific O&S problems are attributable to the uniqueness of joint service data systems. Successful ILS and O&S of these systems requires special attention to their unique support requirements. The uniqueness of these systems usually stems from the integration of the human operational aspects into system design criteria. Communications-electronics systems are designed to be "user friendly." They often employ sophisticated applications software, support unique mission requirements, and require special maintenance. According to the recent Armed Forces Communications-Electronics Association (AFCEA) study, "the problem is that this facet of command and control system uniqueness is either not well-known in the DOD or its full implications are being resisted for a variety of reasons [4:III-6,2a]."

Problems of procurement and support often result because these systems are so specialized that little commonality exists. These systems have rapidly evolving technology and must be tailored to the operational requirements of individual commanders. The cost associated with specialized systems is partially driven by the uniqueness of the applications software. Adding to the support and procurement problems for specialized systems is the problem of trying to provide for the interchangeability of trained maintenance and operations personnel that

is so vital to a military unit at war. The ability to achieve this needed interchangeability is frustrated by conditions in which automated equipment can vary greatly from installation to installation (4:III-6, 2a). The situation is further complicated when programs require multi-service coordination. System uniqueness ultimately adds to the O&S costs by requiring specialized maintenance personnel, documentation, and parts for each system (4:III-6, 2a).

Review of Identified O&S Problems. The successful operations and support of joint service programs requires management's active involvement in requirements determination and planning early in the program. The DPML and SPM are responsible for monitoring and making provisions for the ILS and O&S program needs. Their involvement is essential because "the single most important factor relating to efficient management of joint service programs is adequate early planning [5]."

Service unique features such as different maintenance levels and philosophies, separate inventory control systems and procedures, and different staffing processes are impediments to effective joint service program management. A joint service DPML and SPM have a formidable task to accomplish in view of the complexity of their programs, which are often further complicated by general problems of geographically dispersed resources and support personnel (3; 5; 13).

Every possible effort should be made early in a program to identify and coordinate joint service requirements. This indicates the need for a proactive role by the SPM during the entire program. Perhaps

assigning the SPM earlier in the acquisition cycle would be an improvement (5). Adequate technical support during and after meetings is also necessary. A clear understanding of service-unique provisioning policies and procedures is essential. Configuration management before and after systems are fielded assures better maintainability. Open communication between managers and users is beneficial for everyone. Perhaps the most important consideration is that joint service programs should not be taken for granted.

Summary of Identified O&S Problems. The following list is a compilation of the identified provisioning (planning) and O&S problems for JSAPs:

Planning Conference

* Need for adequate early planning
* Inadequate representation at provisioning
  ** Due to poor planning and follow-up
* Failure to consider Multi-service requirements/variables
* Accurate documentation of provisioning meetings
* Detailed knowledge by SPM necessary, but lacking

Levels of Maintenance/Repair Capabilities

* Different levels between services create problems with:
  ** Technical Manuals/Orders
    *** Availability due service developmental needs
  ** Contractor vs. Organic repair differences
    *** Requires contingency planning
  ** Configuration management
    *** Interchangeability of parts
    *** Repair time increase when overlooked

Inventory Control Procedures/Supply Systems

* Support agreements must be thorough between PICA/SICA/users
  ** Must consider Depot Maintenance Source of Repair Criteria
* Assigning equipment with special stock numbers
  ** Must be timely and accurate
  ** Separate systems between services create delays

Cost Reimbursement

* Procedures not adequately clarified at provisioning

Spares

* Funding for spare parts needed early

Warranty Coverage

* Use and availability required, should save money
* May not be appropriate for all cases
    ** Contractor Repair--usually O.K.
    ** Organic or 3rd Party
        *** Special contract provisions may be required

Scheduling

* Lead times and staffing processes must consider service differences.

Communications-Electronics Systems

* Unique support requirements
* Special procurement and maintenance considerations
    ** Little commonality between systems
* More costly maintenance due to special support needs
* Requirements for multiservice coordination are more difficult

Thus far we have identified, and reviewed some major joint service ILS, ILS planning and provisioning and O&S problems. The following paragraphs will discuss general MIS characteristics and ALMIS in detail.

The Acquisition Logistics Management Information System (ALMIS)

Air Force DPMLs serve a vital role in the acquisition and development of weapon systems. Their task is to assure logistics considerations are thoroughly recognized and provided for early in a program's life. The DPML's function is complex. He must continually monitor program priorities to assure logistics supportability factors

are not undermined or overlooked due to emphasis on other program priorities. For joint service programs there are different operations and support concepts for each service. The DPML must continually measure and manipulate these service-unique variables. Until recently (one year), whether a DPML worked on an Air Force or joint service program, he has used traditional managerial tools without sophisticated automated assistance.

In addition to a Computer Supported Network Analysis System (CSNAS) and a Lessons Learned Databank, there is now an Acquisition Logistics Management Information System (ALMIS). This is managed by the Air Force Acquisitions Logistics Center Office of Plans (AFALC/XR) and is available to assist the DPML, the ILS managers, and other levels of management in quantifying decision variables that affect Integrated Logistics Support for these joint service programs. The ALMIS database contains categorical data on program descriptions, program documents, logistics status and program funding. These files are designed to give the DPMLs and upper management the "big picture" of a program pertaining to acquisition and support requirements. The ALMIS is applicable or potentially beneficial to all managerial levels. All ALCs now have access to ALMIS. Until the ALMIS was implemented, program managers were less certain about the effect different program decisions had on overall ILS (19). The ALMIS provides a means to quantify the effects the various decisions of the SPO director and other management personnel have on the overall logistics supportability of a system (19). The primary intention is to provide improved acquisition and logistics management.

The use of ALMIS as an ILS management tool to address JSAP problems will be evaluated by structured interview survey and analysis. The following overview will focus on common and general Management Information System (MIS) characteristics, and the purpose for implementing MIS technology. Most common causes for MIS failure are described. The evolution of ALMIS will be presented as it was designed to meet Air Force management needs. The current use of ALMIS and planned improvements are also presented.

MIS Background. According to Ein-Dor and Segev, a MIS is

> . . . an assemblage of facilities and personnel for collecting, sorting, retrieving and processing information that is used, or desired, by one or more managers in the performance of management duties [11:4].

Additionally, an ideal MIS should provide integration of information in and between all levels of management (25:209). This information can be used for three different levels of decision making, specifically: (1) operational, (2) tactical, and (3) strategic. The operational level refers to the ground floor, or clerical workers in an organization. The tactical level is essentially middle level management which deals with day-to-day and week-to-week needs. The strategic level is upper management, which can control the way the organization operates, and takes a long range perspective for policy formulation and planning (22). These levels and associated duties range from highly clerical to highly managerial in nature (18:9). The MIS that is designed for different levels of decision making will prove most valuable to a large,

decentralized, geographically dispersed organization. (This seems ideally suited for ILS management of joint service programs. A permanent MIS database can also lessen difficulties associated with the loss of corporate knowledge caused by managerial turnover.) The integration inherent in the system will serve to unite all levels of management and give them information which might otherwise be inaccessible (11:51, 129; 25:209).

Once the decision to implement a MIS is made, upper management involvement is crucial. Literature suggests that senior level management must be involved in, and dedicated to the plan for implementation of a MIS (11:48, 231; 20:66; 30:33). A problem is that often, top level managers fail to appreciate the power of the MIS or perceive it as a threat to their status (11:136).

A MIS implementation plan is a very important ingredient for the overall successful development of MIS capabilities to meet management needs. The plan must include methods to secure managerial involvement. In addition, a successful plan will incorporate user involvement from the outset, have the ability to forecast changes in the organization as a result of MIS capability improvements and provide the ability to change the plan itself as new applications of MIS become evident (20:166). McLean and Soden clearly describe the roles of managers with regard to MIS planning. "Good formal planning must complement, but not replace, the political sensitivity, entrepreneurship, conceptual contribution, and basic business leadership required of the successful MIS executive [20:7]." The overall objective of the MIS plan should be

to focus on developing a system to be used by managers to enhance the organization (11:48).

Despite lessons learned in MIS technology and applications over the last twenty years, major problems still plague attempts to plan and implement MISs. The high rate of MIS software failure revolves around not anticipating true needs, the psychological aspects of the system (specifically, the plethora of information available to managers), or the requirement to test the system's function prior to acceptance and purchase (11:67-72). Ross describes the most common reasons for failure:

* Lack of management participation
* Failure to identify user needs
* No master plan for MIS design
* Oversight of human factors/training needs
* Use of MIS to "repair" a faulty management structure
* Clerical task emphasis [25:16-17]

Lack of management participation is listed as the primary cause of failure in the majority of sources reviewed. In distributed database processing, where virtually all users have access to the entire system, file and data security is also a major problem (25:35).

Considering this general MIS background, the application of the MIS for acquisition logistics managers of joint service programs will be reviewed from the perspectives of system evolution and development, functional description, limitations, and planned upgrade.

ALMIS Evolution and Development. In early 1979 a need for better communication between DPMLs and higher management became evident at the Air Force Acquisition Logistics Division Staff Office AFALD/AQE at

Electronics Systems Division (ESD), Hanscom AFB, MA. DPMLs were required to fill out cumbersome monthly reports relating to their general program status. Even if these reports were submitted on time, at any point in time the overall currency of the information was questionable. The DPML would typically receive phone calls anyway when clarification was required (21).

In an attempt to improve the situation, one DPML suggested an automated approach to data handling and information management. A program was written by the DPML in Common Business Oriented Language (COBOL) to support the status reporting function (21).

This initial system was implemented on the CREATE computer system hardware existing at HQ AFLC by dial-up capability from ESD. Initial reports were generated and a draft user's guide was sent out to users. This system also proved cumbersome due to the excessive amount of time required to input data (21).

Mr. Richard Mitchell, ESD/ALLC wrote a FORTRAN program to improve the system. In September, 1980, a FORTRAN based program was implemented on the CREATE Computer System. It also had problems of slow transmission and printing speeds attributable to old processing equipment. The new system was used to obtain updates from the DPMLs. Staff logistics assistants would then update the database, and printouts would be sent to the DPMLs for verification. Dial-up access was available to selected upper management and the DPMLs had no direct

access to the database. This system was in use until August, 1983, by approximately 20 DPMLs. This system was replaced by phasing in the ALMIS beginning in May, 1983 (21).

Description of ALMIS.

> The ALMIS reduces and eliminates reporting requirement by enabling information users to extract their data directly from the ALMIS. It is the source document for the Meaningful Measures of Merit (M^3) program, logistics Program Assessment Review (PAR), the ALC Commander's notebook, the AFSC Command Management entry, the AFALC Work Load Forecast, and others. The logistics funding elements provide the data required by the joint AFLC/AFSCR 800-10, Acquisition Logistics Status of Programs. The System is designed for cross-feed of issues, opportunities and concerns for logistics of new systems and laboratory development programs [1].

Concern for the openness of information interchange is seen in the continuation of the prior paragraph. This brings out an important area that will be discussed later.

> Provisions have been made for the relatively free introduction of staff concerns. This is not to encourage finger pointing or use of the ALMIS as a forum for debate but to assure visibility to the issues when the opportunities are open. It is important to use the system for the value of the logistics information content and not as an effectiveness rating of the DPML or any other individual [1].

As stated in the ALMIS user's guide,

> The ALMIS is a multiuser, multisource, multipurpose method of information management. It uses data processing equipment but is much more than a data system. Its main purpose is making relevant information available to resource managers and decision makers in acquisition logistics. It is a two-way communications system fostering clear, structured documentation of resources, opportunities, issues, problems

> and difficulties. It helps establish specific objectives and assess progress. Exchange of specific views and concerns is encouraged. Its design for management and decision maker's needs emphasizes what is being done to the weapon system to improve support rather than monitoring schedules [1].

The description of the system is defined by four major areas. These subfile categories are: (1) programs, (2) documents, (3) people, and (4) positions.

Each "program" entry is a document with a set of fields that contain information which describes the program, evaluates acquisition logistics actions, lists upcoming logistics events, requests and commits additional skills and summarizes logistics funding and documentation. Any field may be displayed (1).

The "documents" file is a cross reference of Program Management Directives and Program Action Directives. These are listed by document number and are relative to the system titles in the "programs" file (1).

The "people" file is intended to contain each person's name with relational ties to the "programs" file by system title which the individual supports and to the position number in the "positions" file for anyone in an AFALC position (1). This capability is currently under development. Recommended entries to this file include: people outside AFALC supporting the DPML, the Program Element Monitor (PEM), Systems Staff Officer (SYSTO), AFSC logisticians in the DPML's office and major contacts at the ALCs. A field for functional assignment lists, traceable by specific skills, tasks or staff projects is also planned in order to find personnel by their "positions" (1).

> The major application of the ALMIS is in its use in conjunction with the Meaningful Measures of Merit (M^3) program, a high-level managerial review of AFALC programs. The M^3 process begins with the DPML's assessment of his program's 15 ILS elements. A color (green, yellow or red) is the first entry for each element followed by a severity or impact on the program numeric value: green is 0; yellow is 1 through 5; and red is 6 through 9. Each of these assignments is followed by narrative describing current actions, opportunities or problems. Marginal programs (yellow or red) should include what action is being taken and the expected get-well date. Functional experts within the DPML office/ Intergrated Logistics Support Office (ILSO), or from staff organization will assist in keeping these assessments accurate, specific, relevant and practical . . . [1].

The combined effect of these inputs is a current assessment capability as well as a forecasting device. The ALMIS inputs for use by the M^3 are used in conjunction with internal program reviews. This requires update reviews for data inputs every 30 days in order to show current information that will be used for briefings, internal program reviews and other managerial purposes. Trends are indicated by a + or - immediately following the color, i.e., green -, 0, narrative; or yellow +, 4, narrative. There is also an overall program rating that combines the ILS numeric evaluations and the program phase and precedence rating. This rating assigns the color code which is used for the M^3 Logistics Program Assessment Review (PAR) Briefing (1).

ALMIS Limitations. The limitations of the ALMIS are partly due to subjective factors. Input data may be selectively filtered. From a neutral management viewpoint, every incentive appears to exist for inputting realistic information. This is partly because upper management may more easily correct problems once they become visible.

The idea is that ALMIS will improve the visibility of problem areas so they may be corrected. The system also does seem to have some built in checks and balances because of the limitations on the sources that may read/write program status information. This is a selectively controlled capability carefully designed to maximize data interchange while preserving privacy in selected areas. Problems may arise when the DPML or other inputting official does not want to let his program's weaknesses or problems become visible if they would reflect negatively on either his performance or the program's status. This may occur for a variety of reasons. The possibility exists that certain facts pertaining to mistakes may be suppressed or not mentioned because of the potential for a bad officer effectiveness report. Although these are hypothetical degredations to ALMIS's overall effectiveness, they should be considered and openness should be encouraged. Another limitation is that ALMIS has not developed a direct hardware input-output capability with all users. ALMIS has output capability to all users. Input is limited to ILS office personnel. Also, the type of information that is input is not regularly used for addressing day-to-day issues in a real-time manner. This limitation may not be serious, but the alternative could be beneficial.

The absolute value of ALMIS, or for that matter, any MIS is a difficult area to quantify. The change in the way the work is performed is the essence of a MISs' value (22). If more time and money is spent on the MIS than before, with the same results, then there is no value. One consideration is that managers must avoid becoming slaves of the MISs. If it takes more work than before to keep track of information, then

there is little value in the system. To determine value, the characteristics of the change in work load, cost, performance and possibly schedule criteria would have to be compared to the cost of implementing the MIS. These are factors that often may only be determined by qualitative means (22).

Planned System Upgrade. The existing automated capabilities that support acquisitions logistics management are located on several different systems. These include the ALMIS, CSNAS, Lessons Learned, Product Performance Agreement Center (PPAC), LCC models, Avionics Data Utilization System (ADUS), simulation models, and various analysis models. Current plans are to merge and allow electronic access to all these capabilities via one flexible system.

> The equipment will be a common Automatic Data Processing (ADP) system that all AFALC organizations (staff elements, DPMLs/ILSMs) can use to process and/or access management information. This system will be in 3 parts:
>
> 1. Hardware—The hardware will consist of Central Processing Units (CPUs) and peripheral equipment to include terminals, printers, plotters and local secondary storage.
> 2. Software—A systems support software and applications software.
> 3. Communication--A cable network linking minicomputers such that terminals are not restricted to communicating with only one host.
>
> The system will be able to access ARPANET/MILNET and/or have Wide Area Telephone System (WATS) capability [2].

This thesis survey research will focus primarily on the ALMIS because at this time ALMIS appears to have a current and developing

capability for addressing joint service ILS and O&S problems. As the acquisition support ADP equipment evolves to one integrated system the capabilities of ALMIS will be a principal feature of the new system.

Summary of ALMIS Overview. The use of MIS technology is widespread with diverse potential and actual technical and managerial applications. By considering the common characteristics of MISs and reviewing the capabilities and limitations of the ALMIS one may get the impression that ALMIS has definite value to management. Like any MIS, this value is determined by the derived benefits from the system to its users.

A successful MIS is dependent upon management's involvement in the acquisition and ongoing development of the system to ensure management and users get what they need. MIS is not a new idea, but its applications for joint service programs, which are plagued by logistics support problems, is worth evaluating. The joint service program applications for ALMIS will be assessed. This is potentially valuable in view of current use by Air Force acquisition logistics personnel for over 300 programs, over 50 of which are JSAPs, and the planned expansion of ALMIS to over 600 Air Force lead programs. Present indications are that ALMIS is fulfilling many of management's needs. The evolutionary development of ALMIS may become an increasingly valuable resource for joint service program DPMLs, SPMs, and other management. ALMIS appears to be making management easier; and as ALMIS capabilities expand, it is planned that management will continue to improve.

III. Research Methodology

Introduction

Chapters I and II presented support background and justification for research on Joint Service Acquisition Programs (JSAPs). The literature review identified general, Intergrated Logistics Support (ILS) and Operations and Support (O&S) problems associated with JSAPs. The literature review also included a description of the Acquisition Logistics Management Information System (ALMIS) in order to investigate general and potential applications of ALMIS for JSAPs. This chapter will focus on the research methodology required to: (1) validate previously identified JSAP problems, (2) identify which JSAP problems ALMIS addresses, and (3) determine further potential application of ALMIS for addressing JSAP problems.

This chapter begins with a description and justification of the approach and survey instrument used to solve the research questions. A discussion of the structured interview questionnaire follows. This discussion addresses validity, reliability, questions, sequencing, and pretesting procedures and results. Next, a description of the population, sample, and all relevant dimensions of the sampling plan is presented. The details, assumptions, and limitations of the data collection, and decision rules used to analyze the collected data will be listed.

Data Collection

A structured interview questionnaire (Appendix B) was used to collect data required for the research effort. The survey was administered to middle and upper Air Force managers of JSAPs using telephone interviews. This section presents rationale for the survey method, construction of the survey instrument, and the procedures used to administer the instrument.

Survey Method. The researchers used a structured telephone interview questionnaire to collect research data for this thesis due to the greater advantages realized in terms of specific application of this technique. Emory states that versatility of this method is its greatest strength. It is the only practical way to learn many types of information and the most economical way in many other situations (12:213).

Due to the geographical separation of upper and middle Air Force JSAP managers and the need for qualitative information, the structured telephone interview was both the most practical and economical method which could be employed. The telephone survey was selected over a mail survey because mail surveys are usually subject to strong bias of non-response and are limited in the type and amount of information that can be secured (12:308). Since this research required not only a large percentage of returns to compensate for a small population, but also a great deal of qualitative information, a structured telephone survey was considered most appropriate.

The major criticism of the telephone survey method is that it depends so completely on verbal behavior. The respondent can knowingly give untrue or misleading answers due to the interviewer, situation or questions being asked. Successful data collection therefore depends greatly upon securing correct responses through a properly constructed survey and correct communication procedures (12:214). Other potential disadvantages and limitations considered applicable to this data collection method included: (1) respondents must be reachable by telephone, (2) respondents must be willing to participate, (3) interviews should be limited to a practical maximum of 20 minutes and (4) complex scales and illustrations cannot be used with the telephone medium (12:306-307).

Due to the geographical separation of the respondents, the need for qualitative as well as objective responses, and the need for a large response rate, the telephone interview survey was considered the best method to gather necessary research information and data.

Survey Instrument Construction. Each question in the structured telephone survey (hereafter referred to as measurement questions) must provide information relevant to and tied to specific investigative questions of the research. The survey must contain a sufficient number of measurement questions to satisfactorily support each of the five investigative questions. The researchers developed the survey measurement questions following a comprehensive review and analysis of the literature pertaining to each subject area. Each section of the survey instrument was titled corresponding to issues (versus problems)

so as to reduce bias. An iterative process followed in which the pool of measurement questions were pretested, evaluated, and revised until their validity and reliability were acceptable.

Validity. Validity of the research instrument is its ability to measure what it is purported to measure (12:129). The type of validity most applicable to this research survey is content validity which is the extent to which adequate coverage of the topic under study is provided. To evaluate the content validity of the instrument, the elements which constitute adequate coverage of the problem must be agreed upon. Emory states the determination of content validity is judgmental and can be achieved by: (1) careful definition of the topic of concern, the item to be scaled, and the scales to be used or (2) use a panel of persons to judge how well the instrument meets standards (12:129). The researchers' efforts to confirm content validity of the survey instrument was accomplished by two methods. The first was a critical review of the questionnaire itself by Air Force Institute of Technology faculty to ensure the instrument was soundly constructed to measure what it purported. The second method entailed sending the research proposal and survey instrument to two individuals (for critical review and analysis) who have been actively involved with joint service program management and research (see Appendices A and B). The analysis and feedback received from these individuals included comments for reducing questionnaire bias and improving the technical accuracy of the literature review. This contributed to improved content validity of the research effort.

Reliability. Reliability is the degree to which a measurement instrument provides consistent results to different samples at the same time or to the same sample at different times. It is concerned with estimates of the degree to which a measurement is free of random or unstable error (12:132). The reliability of this research survey instrument was confirmed using a pretest. The pretest for reliability was conducted by the two researchers, each separately contacting the same respondent and conducting the interview. The interviews were conducted two weeks apart and the respondent was unaware that he would be interviewed a second time until two weeks after the first interview. The purpose of the second interview was to confirm the reliability of the survey instrument and the interviewing method of the researchers. The results of the two interviews indicated that the survey instrument and interview method were reliable; there was less than a 10 percent discrepancy in responses between the two interviews. Of the 95 questions answered in this pretest, nine of the responses differed. The researchers considered a 10 percent discrepancy acceptable for survey and interview reliability. Table II depicts the differences between the two reliability interviews.

Research/Investigative/Measurement Questions. Two research questions are presented in this study to identify the persistent general, ILS and O&S managerial problems associated with JSAPs and determine the general and potential use of ALMIS to address them. The literature review of this research identified general, ILS and O&S problems which decrease program management efficiency and effectiveness.

TABLE II

Reliability Pretest Differences

	Responses	
Questions #	Interview 1	Interview 2
5	Disagree	Agree
11	Disagree	Agree
22	Disagree	Agree
29	Don't Know	Agree
29	Agree	Don't Know
48	Disagree	Agree
53	Disagree	Agree
71	Yes	No
72	Yes	No

Research question 1 attempts to validate this literature by determining the major problems being experienced by USAF upper and middle JSAP managers. Investigative questions 1, 2, and 3 support research question 1 by addressing general, ILS , and O&S problems respectively. Measurement questions within the structured interview questionnaire are used to gather data from respondents to support or refute these first three investigative questions. The measurement questions are categorized by sections in the questionnaire relating to general, ILS, and O&S JSAP issues. The following is a depiction of research question 1, investigative questions 1, 2, and 3 and the measurement question sections in support of research question 1:

Research Question 1: What are the major JSAP problems?

Investigative Questions:

1. What are the general JSAP problems?
2. What are the major ILS problems associated with JSAPs?
3. What are the major O&S problems associated with JSAPs?

Measurement (Survey) Question Sections:

1. General Issues.
2. Integrated Logistics Support Issues.
3. Operations and Support Issues.

Research question 2 attempts to identify the current and potential applications of ALMIS for addressing identified JSAP problems. Investigative questions 4 and 5 support the second research question. The measurement questions in section IV of the questionnaire are used to collect the data required to identify current and potential ALMIS application for identified JSAP problems. The following are the questions and survey instrument sections which support research question 2:

Research Question 2: What are the current and potential applications of ALMIS for addressing identified JSAP problems?

Investigative Questions:

4. What identified JSAP problems do Air Force managers address using ALMIS?
5. What are the potential applications of ALMIS for addressing identified JSAP problems?

Measurement (Survey) Question Section:

4. Current/Potential ALMIS Applications.

Each measurement question in the questionnaire (Appendix B) provided information relevant to and tied to specific investigative questions. A sufficient number of measurement questions to satisfactorily support each investigative question contributed to the content validity of the research. Specific measurement questions were used to determine the level of agreement or disagreement with problems identified in the research literature using Likert scales. The measurement questions were worded as problems. This approach was taken in order to determine direct levels of agreement with identified problems from the literature review. Wording measurement questions as problems was a method approved by instructors from the Department of Organizational Sciences (AFIT/LSB). Respondents also had the option to reply with either a not applicable (NA) or don't know (DK) response. If NA or DK responses were selected, that question was not counted, and contributed nothing to the data analysis and findings. Certain measurement questions (6, 7, 33, 63, 64, 95) allowed narrative responses for clarification of respondent's qualitative opinions. These qualitative responses are contained in Appendix G along with specific comments to other measurement questions. These responses, identified by respondent (R) number, provided additional insights and clarification of issues.

Sequencing. Question sequencing in the interview survey is particularly important. Emory's basic principle to guide sequence decisions is: "The nature and the needs of the respondent must determine

the sequence of questions and the organization of the schedules [12:237]." To implement this principle, the researchers' questioning sequence in the survey instrument lists questions by categories in specific sections relating to general, ILS, and O&S JSAP issues. A separate section was used to ascertain applications of ALMIS. This was done in order to enhance the respondents' frame of reference and reduce confusion which could occur if questions relating to the different subjects were randomly mixed in the survey. This also allowed respondents who were not familiar with a particular section the option to skip that section and move to the questions which were applicable to their managerial background.

Population. The population of this research consisted of all USAF managers of JSAPs. This encompasses all levels of management (operational, middle management, and strategic). Included in this population (but not limited to) are all system operators, middle managers (acquisition and logistics management specialists, DPMLs, ILS managers, SPMs, Air Training Command and using command representatives, and project managers), and strategic level managers (Commanders, System Program Office (SPO) Directors, PEMs, and SYSTOs) involved with JSAPs. The ALMIS database provided the researchers a listing of addresses and telephone numbers of current joint service programs being managed by USAF (military and civilian) managers. This database was the primary source of reference for contacting the sample.

Sample. Sampling is based on the premise that there is enough similarity among the elements in a population, that a few of these elements will adequately represent the characteristics of the total population (12:146). The researchers primarily restricted element selection of the population to strategic (upper) and middle JSAP managers who were identified on the ALMIS database. This purposive representation was a deliberate effort to secure a sample of opinions from USAF managers considered most involved and responsible for overall JSAP management. The sample was primarily restricted to those strategic and middle JSAP managers on the ALMIS database with the assumption they would be most knowledgeable of ALMIS applications for JSAPs. It was further assumed that these managers were representative of the Air Force joint service acquisition program management population. It should also be noted that many of the sampled JSAP managers were responsible for or associated with more than one joint service program.

Data Collection Plan

ALMIS provided the researchers a listing of all strategic and middle USAF JSAP managers currently on the ALMIS database. This listing identified over 50 JSAP programs including program office information, location, and telephone numbers. Using this information, the researchers contacted each manager to determine those who would be willing to participate. Questionnaires were then mailed to these participants along with written instructions (Appendix B). The researchers then recontacted each participant by telephone and conducted

the interview using the survey instrument. The completed interview questionnaires represented the collected data which were used for the analysis and findings.

Data Analysis

The data collected from the surveys was divided corresponding to the research question it supported. The analysis of the data for each question was accomplished as follows.

Research Question 1 Analysis. Research question 1 was analyzed using the data obtained from the measurement questions in sections I-III of the questionnaires. These questions used Likert scales to determine the level of agreement/disagreement of respondents to JSAP issues/ problems taken from the literature.

Douglas R. Whitney described a statistical test for use in determining whether or not one "pole" of an attitude (Likert) scale is characteristic of a population. This "t-test" is expected to provide better control over the Type I error rate (the probability of rejecting a hypothesis when in fact it is true) whenever the population shape is non-rectangular and when dealing with moderate sample sizes, as are the cases with this data (29:18).

The test statistic (S) of Whitney's t-test is defined as the sum of the weighted responses for all respondents. It is computed as:

$$S = \sum_{i=1}^{r} if_i$$

with:

f_i = the number of respondents marking the i^{th} category.

r = the number of categories (in this research r = 5) with:

Level of Agreement (categories)	Corresponding i Value
Strongly Disagree (SD)	1
Disagree (D)	2
Indifferent (S)	3
Agree (A)	4
Strongly Agree (SA)	5

The mean and variance of the test statistic are respectively:

$$E(S) = \frac{1}{2} N (r+1)$$

$$V(S) = \frac{\sum_{i=1}^{r} f_i (N_i - S)^2}{N(N-1)}$$

where:

N = the total number of respondents sampled from the population (Don't Know (DK) or Not Applicable (NA) responses not counted)

r = 5 (the number of categories)

E(S) represents the neutral ("indifferent") point on the scale, and combined with V(S), these values are used to form the approximate test statistic (t):

$$t = \frac{S - \frac{1}{2} N (r+1)}{\sqrt{\frac{\sum_{i=1}^{r} f_i (N_i - S)^2}{N(N-1)}}}$$

This t statistic is used to test the hypothesis (H_o):

$$H_o: E(S) = \frac{1}{2} N (r+1)$$

If this hypothesis is rejected at a suitable α-level, the researchers conclude that one or the other pole (agree or disagree) of the Likert scale characterize the population (29:16). The higher the absolute value of the t-statistic the greater the level of agreement or disagreement.

The researchers selected an α-level (probability of a Type I error) of .10, which rejects the hypothesis when the t-statistic $\geq$ |1.645| (based on n > 29 degrees of freedom). In other words, when the t-statistic $\geq$ |1.645| the reserchers concluded with 90 percent confidence that there was either agreement or disagreement with that measurement question. The difference between agreement or disagreement is ascertained by evaluating which side of the "indifferent" scale the majority of the responses contributed to the test statistic ($t \leq -1.645$ = disagree, $t \geq 1.645$ = agree).

The analysis of the collected data for research question 1 was accomplished using a FORTRAN-77 computer program (see Appendix C) on the Digital Equipment Coporation (DEC) VAX 11/780 system at the Air Force Institute of Technology. This FORTRAN program computed t-statistics for

each of the Likert scaled questions in sections I-III of the questionnaire. The variable inputs and computed outputs (t-statistics) for each question are Appendix E.

In addition to the statistical analysis of the Likert scale measurement questions, respondents also identified other problems encountered in JSAPs which were not addressed in the questionnaire. These qualitative responses are also listed (Appendix G) and discussed in Chapter IV, Analysis and Findings.

Research Question 2 Analysis. Research question 2 was analyzed using the data obtained from the measurement questions in section IV of the questionniare. These questions used yes/no responses to determine generally which JSAP problems ALMIS addresses, as well as potential applications of ALMIS for JSAPs. "Don't Know" (DK) responses were also available, but contributed nothing to the analysis when selected. Each measurement question in section IV was analyzed using approximate confidence intervals for proportions. When n (number of responses for a measurement question) is large ($25 \leq n \leq 100$), so that the sampling distribution of the proportion is approximately normal, the $100(1-\alpha)$ percent confidence limits for a proportion are given approximately by:

$$\frac{n}{n+a^2}\left[\frac{R}{n} + \frac{a^2}{2n} \pm \sqrt{\frac{R(n-R)}{n^3} + \frac{a^2}{4n^2}}\right]$$

where:

a = the $1 - (\alpha/2)$ fractile of the standard normal distribution.

n = number of responses for a measurement question.

R = the number of "yes" responses for a measurement question (29:374).

The researchers selected an α-level which results in 90 percent confidence for each question. The normalized value is 1.645 for 90 percent confidence as taken from the standard normal distribution tables. If the computed limits for a question were both above .5, then the researchers concluded respondent agreement with a 90 percent confidence. Conversely, if the limits were both below .5, then the data reflected respondent disagreement with that question. For those questions in which .5 was between the proportion limits, no conclusion could be drawn since a 90 percent proportional confidence was not met.

The analysis of the collected data for research question 2 was also accomplished using a FORTRAN-77 program (see Appendix D). This program computed the upper and lower limits for a 90 percent confidence interval for proportions. The variable inputs and computed limits for each yes/no question of section IV of the questionnaire are Appendix F.

Measurement question 95 allowed respondents an opportunity to respond with any current or potential applications of ALMIS for JSAP management which had not been addressed in the questionnaire. These qualitative responses are also listed and discussed in Chapter IV and are referenced in Appendix G.

Summary

This chapter presented the research methodology to familiarize the reader with the procedures employed to collect and analyze the data. A description of the survey instrument and procedures addressed validity, reliability, sequencing, and pretesting. A description of the population, sample, and sampling plan followed. The data collection plan was outlined, and finally the procedures used to analyze the collected data were discussed. The next chapter will analyze the collected data.

IV. Analysis and Findings

Introduction

Chapter III discussed the research methodology employed to analyze the data collected from the structured telephone interview questionnaire. The analysis begins by presenting demographic information of the sampled respondents. Analysis of investigative questions then follows. The analysis of measurement questions was accomplished using two FORTRAN-77 computer programs on the Digital Equipment Corporation (DEC) VAX 11/780 computer system at the Air Force Institute of Technology (Appendices C and D). The first computer program (Appendix C) was used to evaluate research question 1 (What are the major JSAP problems?). The second computer program (Appendix D) was used to evaluate the responses associated with research question 2 (What are the current and potential applications of ALMIS for addressing identified JSAP problems?).

The following section contains demographics for the research sample.

Demographics

The information contained in Tables III-V represents: (1) the range and average respondent JSAP experience in years (Table III), (2) respondents' rank structure (Table IV), and (3) past and current programs respondents were/are associated with (Table V).

Table III summarizes in years the average JSAP experience of: (1) upper management (Commanders, PEMs, SYSTOs, SPO Directors and the Air Staff who are the respondents (R) 1-33), (2) middle management (DPMLs, SPMs, logistics management specialists, and project managers who are R 34-103), and (3) average total experience, R 1-103.

TABLE III

Range and Average Respondent JSAP Experience

Level	Range (years)	Average Experience (years)
Upper Management (R 1-33)	1-13	4.16
Middle Management (R 34-102)	1-15	3.94
*Total Management (R 1-103)	1-15	4.01

* R103 responded only to the qualitative portion of the questionnaire and represented upper management.

Table IV shows the number of respondents categorized by their rank structure. All respondents worked for the Air Force on joint service programs. The rank structure included three enlisted, fifty-eight officer and forty-two general schedule (GS) respondents.

TABLE IV

Respondent Rank Structure

Rank/GS Level	Number	Percent
E-6	1	.97
E-7	2	1.94
O-1	1	.97
O-2	2	1.94
O-3	10	9.71
O-4	20	19.42
O-5	18	17.48
O-6	6	5.83
O-8	1	.97
GS-11	2	1.94
GS-12	28	27.18
GS-13	9	8.74
GS-14	3	2.91
Total Respondents	103	

Table V summarizes the past and current joint program experience. The table lists a total of 67 joint service programs. Many of the respondents were responsible or managed more than one of these programs. The listing is intended to familiarize the reader with JSAP experience/ background of the respondent sample.

TABLE V

Respondent Program Experience

Joint Stars
Tactical Information Processing and Interpretation (TIPI)
AIM 7, 9L
AIM 120A
Long Haul Information System
Joint Tactical Information Distribution System (JTIDS)
Airborne Self Protection Jammer (ASPJ)
Air Launched Cruise Missle (ALCM)
Joint Simulators
Aerial Targets
Advanced Medium Range Air To Air Missle (AMRAAM)
JP233
Soviet SAll Threat Simulator
MILSTAR (and Terminals)
NAVSTAR Global Positioning System (GPS)
Ground Mobile Forces Tactical Communication System
World Wide Military Command and Control System (WWMCCS)
  Information System (WIS)
Base Information Security System (BISS)
AFSATCOM (and Terminals)
TRI-TAC
Microwave Landing System (MLS)
Modular Control Equipment (MCE)
Joint Cruise Missile
Defense Satellite Communication System (DSCS)
Tactical Digital Assembly
FMU139B Bomb Fuse
AN/ALQ-165(V)
Gator Mine System
Seneca Army Depot Closed Circuit Television System
AN/GPN-T4
ALT-32
Brite Replacement
Time Diversity Modem
DCS Voice Order Wire
PQM-102
QF-100
MQM-107
Selective Message Router
AN/GSC-49
State of the Art Media Terminal
AN/PPS-15
AN/GPS-15
Facility Intrusion Detection System
AN/TSC, 94, 94A, 100, 100A

TABLE V (cont.)

Digital Brite
Flight Data Input/Output System
Air Combat Maneuvering Instrumentation System (ACMIS)
Tactical Information Processing System
AN/MPO-T3
Foliage Penetration Radar (FOPEN)
AN/TPS-15B
Personnel Surveillance Radar
Radar Airborne Intrusion Detection System (RAIDS)
Tactical and Strategic Ground Stations
ALQ/167 Training Pod
Water Intrusion Detection System
Close Sheltered Air Control System (C-SAS)
AN/GSC-49/52
AQM-81A Firebolt
Digital Non-Secure Voice Terminal
UH-60A
Multiplex Terminal Set
AN/TTC-39 Circuit Switch
AN/TYC-39 Message Switch
AN/TTC-42 Circuit Switch
AN/TRC-170

Analysis of Investigative Questions

The analysis was accomplished by evaluating each specific investigative question using computer statistical analysis and qualitative evaluation methods. The analysis for each investigative question follows.

Investigative Question 1. What are the general JSAP problems?

Measurement questions 1-7 were associated with investigative question 1.

Measurement Questions 1-5. Questions 1-5 were analyzed statistically to compute a test statistic (Whitney's t-test) in order to determine with 90 percent confidence ($\alpha = .10$) which identified

general JSAP issues were problems. When the t-statistic was greater than 1.645 the researchers concluded respondent agreement with the stated problem. Table VI summarizes the results of the analysis for measurement questions 1-5.

Table VI

Analysis of Measurement Questions 1-5

Question	Issue	t-statistic
1	Ineffective Interservice Communication	9.5273
2	Coordinating Joint Service Requirements	13.9116
3	Inadequate Planning	4.8176
4	Geographically Dispersed Resources	4.5479
5	Management Personnel Turnover	8.4196

Each of the issues in Table VI were confirmed as being problems affecting JSAPs. Higher t-statistics indicated greater level of respondent agreement with the stated issue.

Measurement Question 6. Question 6 elicited respondent comments on general JSAP concerns or problems not identified in measurement questions 1-5 of the questionnaire. Appendix G (Survey Comments) lists associated respondent comments by question number. The researchers reviewed all respondent comments to measurement question 6 to determine whether there were any additional significant general JSAP problems being experienced by Air Force managers.

There were a total of 79 responses to measurement question 6. Of these 79 responses, three significant issues were identified. These issues and applicable number of responses follow.

1. Unique service requirements--Thirty-three respondents stated that unique service requirements result in JSAP problems. Respondents thought that joint programs were often forced upon the services even though each service had unique operational/support requirements. The feedback indicated that these respondents made a distinction between unique service requirement related problems and problems associated with coordinating joint service requirements (question 2).

2. Different service procedures--The services have separate procedures for acquisition and support. Thirty respondents stated that this issue created management problems between the executive (lead) and secondary service(s).

3. Funding--Although many specific ILS and O&S funding issues were later identified in sections II and III of the questionnaire, seventeen respondents identified several diverse funding issues as a general JSAP problem in this section. These comments/issues are also listed in Appendix G.

Measurement Question 7. Question 7 was asked to ascertain respondent opinion as to which general problem created the most difficulty in managing JSAPs. Table VII lists the general JSAP problems with the corresponding number of responses.

Table VII shows that ineffective interservice communication (measurement question 1) was considered the most difficult problem of the identified general problems. However, coordinating joint service

TABLE VII

Analysis of Measurement Question 7

Question	Problem	Number of Responses
1	Ineffective Interservice Communication	22
2	Coordinating Joint Service Requirements	15
3	Inadequate Planning	4
4	Geographically Dispersed Resources	4
5	Management Personnel Turnover	5
6a	Unique Service Requirements	20
6b	Different Service Procedures	16
6c	Funding	12

requirements (measurement question 2) and unique service requirements (measurement question 6a) were closely related. If their responses were combined, the overall issue of joint service requirements could be considered the most difficult problem for management. This could also explain the high t-statistic associated with measurement question 2 (13.9116).

Investigative Question 2. What are the major ILS problems associated with JSAPs?

Measurement questions 8-35 were associated with investigative question 2. These measurement questions, with the exception of measurement questions 12, 15, 34, and 35 were analyzed statistically to

compute a test statistic (Whitney's t-test) to determine the level of agreement/disagreement with each of the Likert scaled questions. Measurement question 12 and 15 elicited yes/no responses, while measurement questions 34 and 35 were qualitative (Appendix G). Table VIII summarizes the validated ILS issues/problems.

Measurement Questions 8 and 9. Question 8 was asked to determine respondent opinion on whether there was a wide range of program guidance available for management of JSAPs. Question 9 asked if the diversity due to a wide range of program guidance created problems for JSAP managers. Since there was no level of agreement on measurement question 8 (t-statistic = .8613), no conclusion can be made on whether a diversity of program guidance was considered to create problems for JSAP managers.

Measurement Questions 10 and 11. Question 10 addressed whether DOD regulations are often tailored by managers to meet individual and service needs for JSAPs. Question 11 was asked to determine whether this tailoring creates problems. The t-statistics (Table VIII) for both questions confirmed respondent agreement, and therefore the researchers concluded that individual tailoring of DOD regulations is a JSAP problem.

Measurement Questions 12-14. Questions 12, 13, and 14 related to the SISMS manual. Question 12 intended to determine the percentage of respondents who were familiar with the SISMS manual. Fifty-two percent of the respondents were familiar with the manual.

Table VIII

Analysis of ILS Issues/Problems

Question	Validated Issues/Problems	t-statistic
10	DOD regulations often tailored	6.3551
11	Tailoring creates problems	3.8513
12	SISMS familiarity	52% familiar
14	*SISMS not useful/important	-4.8961
19	JLSP is comprehensive planning document	6.0954
21	Joint requirements and agreements omitted from JLSP create problems later	9.7697
22	Inability to enforce adherence to joint regulations and guidance results in problems	9.9358
23	ILS funds not permanently available	3.8525
25	Unavailability of permanent ILS funds creates problems	5.3662
26	Early cut ILS funds result in higher program costs	14.2982
29	Discontinued service involvement is costly	15.2960
31	Funding category differences create problems	2.4169
32	Resolving management issues at lower levels difficult	5.0476
33	Problems frequently referred to higher headquarters	4.6906

* Disagreement that SISMS not useful/important, therefore the researchers infer SISMS is considered useful and important.

Questions 13 and 14 were then answered by those respondents who were familiar with the SISMS manual. There were inconclusive findings for measurement question 13 (usage of SISMS as a reference for JSAP management) due to a t-statistic = 1.1834. However, disagreement with question 14 reflected that managers familiar with the SISMS manual considered it useful or important for JSAP management.

Measurement Questions 15-18. Question 15 was a preliminary question for questions 16-18, and determined that 63 percent of respondents were managing C-E programs and were therefore eligible to answer questions 16-18. Question 16 was asked to determine whether C-E program guidance is vague and diffcult to understand. No conclusion could be drawn due to an inconclusive t-statistic = -.1313. Question 17 was intended to determine whether problems existed due to a lack of follow-up guidance. The t-statistic for this question (-.3377) was also inconclusive. Question 18 was asked to determine whether vagueness, generality and lack of standardization of C-E guidance was a problem. The t-statistic for this question was also inconclusive (1.4991). Therefore these three areas were not supported as problems.

Measurement Questions 19-21. Questions 19-21 pertained to the JLSP. Question 19 purported to determine whether managers considered the JLSP a comprehensive planning document. Respondent agreement confirmed this issue with a t-statistic = 6.0954. No determination could be made for question 20, that joint requirements are not fully detailed in the JLSP for respondents' programs, since an

inconclusive t-statistic (1.3858) was obtained. Question 21 confirmed that joint requirements omitted from the JLSP produced problems later in a program (t-statistic = 9.7697).

Measurement Question 22. Question 22 pertained to problems that result due to the inability to enforce adherence to joint service regulations and guidance. A t-statistic = 9.9385 confirmed this ILS issue as a problem.

Measurement Questions 23-31. Questions 23-31 addressed JSAP funding or cost issues. Data for question 23 confirmed that ILS funds are not available on a permanent basis for specific ILS needs (t-statistic = 3.8525). Question 24 was asked to determine if SPO directors redirect ILS funds for other purposes, and no conclusions could be made due to a t-statistic = -1.1848. Data for question 25 determined that unavailability of "permanent" ILS funds produces problems for JSAPs (t-statistic = 5.3662). Question 26 strongly validated respondent opinion that ILS funding cuts early in a program cause total program costs to be greater in the long run as the t-statistic = 14.2982. Question 27 was asked to determine if JSAPs experience problems with interservice transfer of funds due to inadequate procedures. No conclusion could be made due to a t-statistic = -1.0670. Question 28 did not validate problems associated with transfer of funds on the MIPR due to disagreement with the question as determined by a t-statistic = -2.3134.

Question 29 asked whether discontinuation of service involvement is costly to the executive service without provisions for cancellation. This issue was confirmed with the strongest t-statistic (15.2960) of this research.

Question 30 stated that cancellation clauses do not exist in respondents' contracts to cover discontinued service involvement. No conclusion could be made based on a t-statistic = .6702.

Question 31 asked whether funding category differences caused problems in transferring funds and purchase and support of equipment. The researchers concluded that problems were created due to funding category differences with a t-statistic = 2.4169.

Measurement Questions 32 and 33. Questions 32 and 33 related to resolving JSAP problems at different managerial levels. Question 32 addressed whether resolving interservice problems at lower management levels is difficult. This was agreed upon with a t-statistic = 5.0476. Question 33 intended to determine whether problems were frequently referred to higher headquarters for resolution. This was also confirmed with a t-statistic = 4.6906.

Table VIII summarizes the analysis of data on ILS issues/problems from section II of the questionnaire.

Measurement Questions 34 and 35. Question 34 elicited respondent comments on any additional major ILS problems for JSAPs not previously mentioned in the questionnaire. Appendix G (Survey Comments) lists associated respondent comments by question number. The researchers reviewed all respondent comments to determine concurrence

for issues/problems not previously identified. Many new issues surfaced, but there was no overall respondent consensus among these issues. Question 35 intended to determine the major ILS problem experienced by JSAP managers. There was also no consensus among respondents to this question, although some issues that surfaced in questionnaire section I (General JSAP Issues) were again expressed in this section.

Operations and Support issues will next be analyzed and discussed in support of investigative question 3.

Investigative Question 3. What are the major O&S problems associated with JSAPs?

Measurement questions 36-64 were associated with investigative question 3. All questions were statistically analyzed using Whitney's t-test with the exception of questions 59, 63 and 64 which were qualitatively analyzed.

Measurement Questions 36-40. Questions 36-40 were associated with planning and provisioning O&S issues for JSAPs. Question 36 was asked to determine whether adequate planning before and during provisioning conferences is often lacking. Respondents agreed with this issue with a t-statistic = 4.3589. Question 37 addressed the issue of underrepresentation of technical support at provisioning conferences. Respondents agreed that this issue caused problems with a t-statistic = 10.3570. Question 38 intended to determine if multiservice requirements/variables were sometimes overlooked at provisioning. Question 39 was then asked to determine if overlooked requirements and

variables adversely affect O&S. Both of these issues were confirmed with respective t-statistics of 5.9060 and 6.9104. Question 40 was asked to determine whether accurate and timely documentation of provisioning meetings was not routinely available to participants. No conclusions were made since the t-statistic was -.1179.

Measurement Question 41. Question 41 related to whether SPMs were considered unaware of detailed JSAP operational level details affecting their programs. This was confirmed with a t-statistic = 2.0553.

Measurement Question 42. Question 42 elicited respondent opinion on whether different maintenance levels between services created problems with technical order availability and development. This was confirmed with a t-statistic = 14.5400.

Measurement Questions 43 and 44. Questions 43 and 44 related to contractor versus organic repair and planning problems for interim contractor repair between services. These questions were confirmed with t-statistics = 8.5297 and 10.7216, respectively.

Measurement Questions 45-47. Questions 45-47 related to configuration management documentation inaccuracy, problems with documenting interchangeable parts, and increases in system repair and down time when configuration management is lacking. Question 45 confirmed respondent opinion that configuration management documentation is often lacking with a t-statistic = 1.6879. Question 46 produced inconclusive results regarding documenting interchangeable parts for

joint systems with a t-statistic = -.9430. Question 47 substantiated respondent opinion that repair time and system down time increase when configuration management is lacking (t-statistic = 13.7937).

Measurement Questions 48-53. Questions 48-53 were associated with various issues concerning inventory control procedures and depot maintenance. The t-statistic for question 48 (4.0262) substantiated respondent opinion that inventory control procedures between services are inadequate and confusing. Support agreements between PICAs/SICAs and users were considered generally unclear with a t-statistic = 1.8550 for question 49.

The t-statistic was -1.0399 for question 50, which was inconclusive. This reflected no concurrence that depot maintenance source of repair agreements for JSAPs are generally unclear. Respondents agreed that assigning special stock numbers for different service's equipment is difficult and ineffectual once accomplished with a t-statistic = 3.2420 for question 51. A high t-statistic = 13.3182 for question 52 indicated problems occur when stock numbers are not assigned early in the program to meet multiservice requisition and support needs. Data for question 53 also confirmed that differences in each service's supply systems create delays in ordering, shipping and maintaining parts and equipment (t-statistic = 5.9938).

Measurement Questions 54-56. These three questions related to different cost and funding issues. Data for question 54 confirmed respondent opinion that cost reimbursement procedures are not adequately clarified at provisioning (t-statistic = 2.7776). Respondents agreed

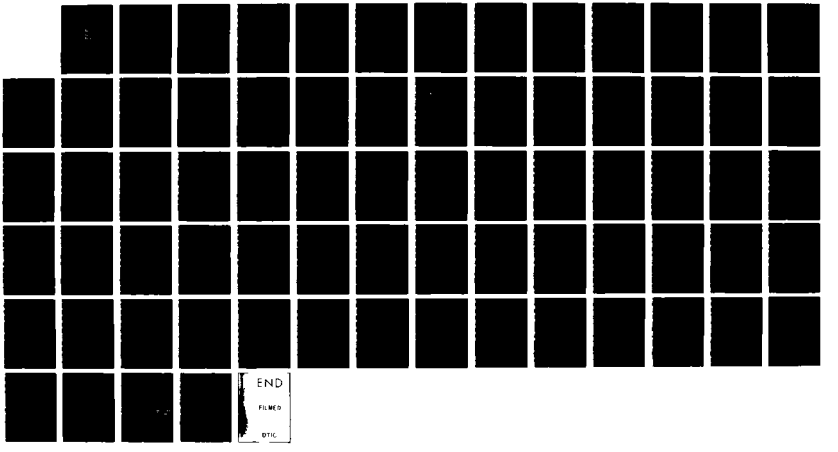
with question 55 that spare parts are generally not funded early in a program (t-statistic = 1.7782). Question 56 addressed the issue of warranty coverage. The t-statistic for this question (2.0683) indicated respondent agreement that total system support costs are increased when early and full use of warranty coverage is not utilized.

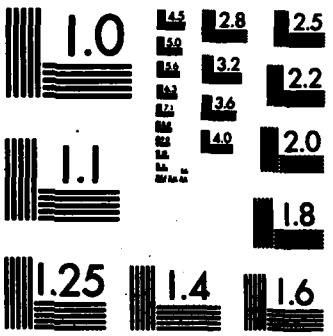
Measurement Question 57. Data for this question confirmed respondent opinion that problems occur if a contract does not specify special arrangements between organic and/or third party maintenance sources with the system guarantor (t-statistic = 8.4670).

Measurement Question 58. It was determined that respondents thought that schedules do not reflect different lead times and staffing processes of other services with a t-statistic = 4.2409.

Measurement Questions 59-62. These questions related to O&S issues for C-E programs. Question 59 was asked to determine whether respondents were involved in managing C-E JSAPs. Sixty-one percent of the respondents were eligible to respond to questions 60-62. Respondents agreed that unique support requirements for C-E systems create ongoing O&S problems with a t-statistic = 6.1799 for question 60. Data for question 61 was inconclusive on the issue that there is little commonality of parts between operationally "identical" C-E systems due to inadequately documented field repairs and changes (t-statistic = -1.5352). Data for question 62 confirmed respondent opinion that maintenance for C-E systems is difficult and costly due to special support requirements and system differences (t-statistic = 2.0391).

AD-A147 656 AN INVESTIGATION OF JOINT SERVICE ACQUISITION LOGISTICS 2/2
ISSUES/PROBLEMS A.. (U) AIR FORCE INST OF TECH
WRIGHT-PATTERSON AFB OH SCHOOL OF SYST..
UNCLASSIFIED S E MILLS ET AL. SEP 84 AFIT/GLM/LSM/84S-46 F/G 5/1 NL





Measurement Questions 63 and 64. Questions 63 and 64 elicited respondent comments regarding the major O&S problem and additional problems for JSAPs, respectively. The major O&S problem was considered to be related to different maintenance concepts and levels of maintenance between services. Eighteen respondents stated this was the major O&S problem for JSAPs. Responses to question 64 produced no significant consensus on any additional O&S problems experienced by JSAP managers that had not been previously identified in the questionnaire. A list of all responses to questions 63 and 64 is contained in Appendix G. Table IX summarizes the forementioned validated O&S issues/problems.

The validated general, ILS, and O&S problems/issues were the basis for analyzing current and potential applications of ALMIS which are next discussed in support of investigative questions 4 and 5. This analysis was accomplished both statistically and qualitatively. Questions 65-94 were analyzed statistically using the approximate confidence interval for proportions, while question 95 allowed respondents the opportunity to discuss additional ALMIS applications/issues which were qualitatively analyzed by the researchers.

Investigative Question 4. What identified JSAP problems do Air Force managers address using ALMIS?

The odd numbered measurement questions 65-93 from section IV of the questionnaire were asked to determine respondent agreement (yes/no) on which issues mentioned in the literature review were being addressed by ALMIS. These questions did not match each and every specific JSAP issue/problem from section I-III of the questionnaire. Instead, the

TABLE IX

Validated O&S Issues/Problems

Question	Validated Issues/Problems	t-statistic
36	Inadequate provisioning planning	4.3589
37	Underrepresentation at provisioning conferences	10.3570
38	Overlooked multiservice requirements/ variables at provisioning	5.9060
39	Failure to consider multiservice requirements adversely affects O&S	6.9104
41	SPMs unaware of detailed operational JSAP information	2.0553
42	Different maintenance levels create technical order problems	14.5400
43	Resolving contractor versus organic repair arrangements creates problems	8.5297
44	Lack of contingency planning for interim contractor repair creates support problems	10.7216
45	Inaccurate configuration management documentation	1.6879
47	Lack of configuration management increases repair and system downtime	13.7937
48	Inadequate and confusing inventory control procedures	4.0262
49	Unclear support agreements between PICAs/ SICAs and users	1.8550
51	Assigning stock numbers is difficult and ineffectual	3.2420
52	Not assigning stock numbers early for requisition and support needs creates problems	13.3182

TABLE IX (cont.)

Question	Validated Issues/Problems	t-statistic
53	Different supply systems create ordering/shipping/maintenance delays	5.9938
54	Inadequate clarification of cost reimbursement procedures at provisioning	2.7776
55	Spare parts not funded early in a program	1.7782
56	Non-utilization of warranty coverage increases total system support costs	2.0683
57	Special arrangements not specified between organic/contractor and/or 3rd party maintenance with system guarantor creates problems	8.4670
58	Schedules do not reflect different service lead times	4.2409
60	Unique C-E support requirements create O&S problems	6.1799
62	Maintenance for C-E systems difficult and costly due to special support requirements/system differences	2.0391

researchers attempted to determine which key and general issues/problems ALMIS currently addressed.

The variable inputs and resultant computer statistical outputs for section IV of the questionnaire are Appendix F. Two JSAP issues were confirmed with a 90 percent confidence as having current ALMIS application. They were: (1) question 69, ALMIS is being used to monitor funding for JSAPs, and (2) question 85, ALMIS is being used to reference

different levels of maintenance for certain JSAP concerns. The upper and lower statistical proportional limits for these two issues were extracted from Appendix F and are summarized in Table X.

TABLE X

Current ALMIS JSAP Applications

Question	Issues	Statistical Limits
69	Monitor funding	.7223 - .9013
85	Reference Levels of Maintenance	.6730 - .8740

Since both intervals were above the .5 value the researchers concluded respondent agreement with these two general JSAP issues as being addressed by ALMIS.

Investigative Question 5. What are the potential applications of ALMIS for addressing identified JSAP problems?

The even numbered measurement questions 66-94 from questionnaire section IV were asked to determine respondent agreement (yes/no) on which issues mentioned in the literature review ALMIS "should" (could for question 78) be used to address. Questions 66-94 were analyzed using the same methods employed in analyzing the data for investigative question 4. Statistical analysis of the data (Appendix F) reflected five issues that should/could be addressed by ALMIS for JSAP management. Table XI summarizes these issues and shows the statistical limits for each issue.

TABLE XI

Potential ALMIS JSAP Applications

Question	Issues	Statistical Limits
66	Database for program guidance	.6146 - .8328
70	Monitor funding	.7467 - .9172
78	Could make problem resolution at lower management levels easier	.6378 - .8661
80	Documenting different points of contact for planning and provisioning	.6548 - .8590
86	Use to reference levels of maintenance	.6510 - .8641

The researchers' analysis of these five potential ALMIS applications included the following observations. Respondents were inconclusive on whether ALMIS was currently used as a database for program guidance (question 65), but did confirm question 66 that this issue has potential for being addressed by ALMIS. Analysis of questions 69 and 70 confirmed that ALMIS is both being used to monitor funding issues and that it should continue to be used for this purpose. Respondents thought that ALMIS was not being used in a way that made JSAP problem resolution easier at lower management levels (question 77), but did agree that it should be used for this purpose. Question 79 was asked to determine whether ALMIS was currently being used to document different points of contact for planning and provisioning. While the data was inconclusive on current ALMIS applications for this issue,

analysis of data for question 80 indicated that it should be used for this purpose. Questions 85 and 86 addressed the issue of referencing different levels of maintenance for JSAPs. Respondents thought that ALMIS currently addressed this issue and also thought that it should.

There were no issues from the analysis of questionnaire section IV data currently addressed by ALMIS that respondents thought should not be addressed. Analysis of the qualitative responses to question 95 regarding any current or potential applications of ALMIS not previously mentioned in the questionnaire surfaced some additional concurrence on ALMIS applications.

Measurement Question 95. This section elicited qualitative respondent comments regarding current and potential applications of ALMIS for JSAP management not addressed in the questionnaire. Several comments reflected management concern regarding the original design and purpose of the system. Nine respondents stated that too many detailed applications would place an added burden on lower management levels to keep the database current. Additional capabilities should be implemented only if they facilitate improving management at all levels.

Although there was no overriding consensus on specific desirable capabilities for ALMIS, a few concurring recommendations were expressed. Table XII lists these recommendations and the associated number of responses.

TABLE XII

ALMIS Desirable Capabilities

Capability	Number of Responses
Improved communications issues:	
Networking	3
Should be a two-way system	3
Electronic mail	2
Expanded interface with upper management	3
Timely notification of events	2
Logistics Support Analysis	2
Document major milestones	2

The preceding comments and respondent recommendations were extrapolated from comments contained in Appendix G. Specific insights on ALMIS' current and potential applications can be gained by referring to this appendix.

This chapter has analyzed the data collected from the questionnaire in order to support the research and investigative questions. Table XIII is a compilation of the results of the analysis for each measurement question by questionnaire section. The statistical analysis for each measurement question resulted in either a confirmed (C), rejected (R), or inconclusive (I) finding regarding respondent opinion on JSAP issues/problems.

The final section of this research effort contains conclusions and recommendations based upon the preceding analysis.

TABLE XIII

SUMMARY OF STATISTICALLY ANALYZED DATA

SECTION	Q #	ISSUE/PROBLEM	C	R	I	YES	NO
GENERAL ISSUES	1	INEFFECTIVE INTERSERVICE COMMUNICATION	X				
	2	COORDINATING JOINT-SERVICE REQUIREMENTS	X				
	3	INADEQUATE PLANNING	X				
	4	GEOGRAPHICALLY DISPERSED RESOURCES	X				
	5	MANAGEMENT PERSONNEL TURNOVER	X				
ILS	8	WIDE RANGE OF PROGRAM GUIDANCE AVAILABLE			X		
	9	DIVERSITY OF GUIDANCE CREATES PROBLEMS			X		
	10	DOD REGULATIONS OFTEN TAILORED	X				
	11	TAILORING CREATES PROBLEMS	X				
	12	FAMILIAR WITH SISMS				52	48
	13	SISMS RARELY USED/REFERENCED			X		
	14	SISMS NOT USEFUL/IMPORTANT		X			
	15	CURRENTLY MANAGING A C-E PROGRAM				63	37
	16	C-E GUIDANCE VAGUE/DIFFICULT TO UNDERSTAND			X		
	17	LITTLE FOLLOW-UP GUIDANCE FOR COMMAND AND CONTROL PROGRAMS			X		
	18	C-E GUIDANCE--VAGUE, GENERAL, LACK OF STANDARDIZATION			X		
	19	JLSP IS A COMPREHENSIVE PLANNING DOCUMENT	X				
	20	JOINT REQUIREMENTS NOT FULLY DETAILED IN JLSP			X		
	21	JOINT REQUIREMENTS AND AGREEMENTS OMITTED FROM JLSP CREATE PROBLEMS	X				
	22	INABILIBITY TO ENFORCE ADHERENCE TO JOINT REGULATIONS AND GUIDANCE RESULTS IN PROBLEMS	X				
	23	ILS FUNDS NOT PERMANENTLY AVAILABLE	X				
	24	SPO DIRECTOR REDIRECTS ILS FUNDS			X		
	25	UNAVAILABLILITY OF PERMANENT ILS FUNDS	X				
	26	EARLY CUT ILS FUNDS RESULT IN HIGHER PROGRAM COSTS	X				
	27	INTERSERVICE TRANSFER OF FUNDS PROCEDURES INADEQUATE--CAUSES PROBLEMS			X		
	28	PROBLEMS OCCUR WITH TRANSFER OF FUNDS ON MIPR			X		
	29	DISCONTINUED SERVICE INVOLVEMENT IS COSTLY	X				

C = CONFIRMED R = REJECTED I = INCONCLUSIVE

TABLE XIII (CONT.)

SECTION	Q #	ISSUE/PROBLEM	C	R	I	YES	NO
ILS (CONT.)	30	CANCELLATION CLAUSES DO NOT COVER DISCONTINUED SERVICE INVOLVEMENT			X		
	31	FUNDING CATEGORY DIFFERENCES CREATE PROBLEMS	X				
	32	RESOLVING MANAGEMENT ISSUES AT LOWER LEVELS DIFFICULT	X				
	33	PROBLEMS FREQUENTLY REFERRED TO HIGHER HEADQUARTERS	X				
O&S	36	INADEQUATE PROVISIONING PLANNING	X				
	37	UNDERREPRESENTATION AT PROVISIONING CONFERENCES	X				
	38	OVERLOOKED MULTISERVICE REQUIREMENTS/VARIABLES AT PROVISIONING	X				
	39	FAILURE TO CONSIDER MULTISERVICE REQUIREMENTS ADVERSELY AFFECTS O&S	X				
	40	DOCUMENTATION OF PROVISIONING MEETINGS NOT ROUTINELY AVAILABLE			X		
	41	SPMS UNAWARE OF DETAILED OPERATIONAL JSAP INFORMATION	X				
	42	DIFFERENT MAINTENANCE LEVELS CREATE TECHNICAL PROBLEMS	X				
	43	RESOLVING CONTRACTOR VERSUS ORGANIC REPAIR ARRANGEMENTS CREATES PROBLEMS	X				
	44	LACK OF CONTINGENCY PLANNING FOR INTERIM CONTRACTOR REPAIR	X				
	45	INACCURATE CONFIGURATION MANAGEMENT DOCUMENTATION	X				
	46	UNTIMELY/INACCURATE DOCUMENTATION OF INTERCHANGEABLE PARTS			X		
	47	LACK OF CONFIGURATION MANAGEMENT INCREASES REPAIR AND SYSTEM DOWNTIME	X				
	48	INADEQUATE AND CONFUSING INVENTORY CONTROL PROCEDURES	X				
	49	UNCLEAR SUPPORT AGREEMENTS BETWEEN PICAS/SICAS AND USERS	X				
	50	DEPOT MAINTENANCE SOURCE OF REPAIR AGREEMENTS UNCLEAR			X		
	51	ASSIGNING STOCK NUMBERS IS DIFFICULT AND INEFFECTUAL	X				
	52	NOT ASSIGNING STOCK NUMBERS EARLY FOR REQUISITION AND SUPPORT NEEDS	X				
	53	DIFFERENT SUPPLY SYSTEMS CREATE ORDERING/SHIPPING/MAINTENANCE DELAYS	X				
	54	INADEQUATE CLARIFICATION OF COST REIMBURSEMENT PROCEDURES AT PROVISIONING	X				
	55	SPARE PARTS NOT FUNDED EARLY IN PROGRAMS	X				
	56	NON-UTILIZATION OF WARRANTY COVERAGE INCREASES SYSTEM SUPPORT COST	X				
	57	PROBLEMS OCCUR IF CONTRACTS DO NOT SPECIFY ARRANGEMENTS BETWEEN ORGANIC AND/OR 3RD PARTY MAINTENANCE AND SYSTEM GUARANTOR	X				
	58	SCHEDULES DO NOT REFLECT DIFFERENT SERVICE LEAD TIMES	X				
	59	CURRENTLY INVOLVED IN C-E PROGRAM				60	38
	60	UNIQUE C-E SUPPORT REQUIREMENTS CREATE O&S PROBLEMS	X				

TABLE XIII (CONT.)

SECTION	Q #	ISSUE/PROBLEM	C	R	I	YES	NO
O&S (CONT.)	61	THERE IS LITTLE COMMONALITY OF PARTS BETWEEN OPERATIONALLY IDENTICAL C-E SYSTEMS			X		
	62	MAINTENANCE FOR C-E SYSTEMS DIFFICULT AND COSTLY DUE TO SPECIAL SUPPORT REQUIREMENTS/SYSTEM DIFFERENCES	X				
CURRENT/POTENTIAL ALMIS APPLICATIONS	65	IS ALMIS USED AS A DATABASE TO SPECIFY PROGRAM GUIDANCE			X		
	66	SHOULD ALMIS BE USED AS A DATABASE TO SPECIFY PROGRAM GUIDANCE	X				
	67	IS ALMIS USED TO COORDINATE REQUIREMENTS FOR THE JLSP		X			
	68	SHOULD ALMIS BE USED TO COORDINATE REQUIREMENTS FOR THE JLSP			X		
	69	IS ALMIS USED TO MONITOR FUNDING FOR PROGRAMS	X				
	70	SHOULD ALMIS BE USED TO MONITOR FUNDING FOR PROGRAMS	X				
	71	IS ALMIS USED TO MONITOR INTERSERVICE TRANSFER OF FUNDS		X			
	72	SHOULD ALMIS BE USED TO MONITOR INTERSERVICE TRANSFER OF FUNDS			X		
	73	IS ALMIS USED TO MONITOR CONTRACTOR PERFORMANCE OF CONTRACT DELIVERABLES		X			
	74	SHOULD ALMIS BE USED TO MONITOR CONTRACTOR PERFORMANCE OF CONTRACT DELIVERABLES			X		
	75	IS ALMIS USED TO MONITOR FUNDING CATEGORY DIFFERENCES		X			
	76	SHOULD ALMIS BE USED TO MONITOR FUNDING CATEGORY DIFFERENCES			X		
	77	IS ALMIS USED TO MAKE JSAP PROBLEM RESOLUTION EASIER FOR LOWER MANAGEMENT		X			
	78	COULD ALMIS BE USED TO MAKE JSAP PROBLEM RESOLUTION EASIER FOR LOWER MANAGEMENT	X				
	79	IS ALMIS USED TO DOCUMENT DIFFERENT POINTS OF CONTACT FOR PLANNING AND PROVISIONING			X		
	80	SHOULD ALMIS BE USED TO DOCUMENT DIFFERENT POINTS OF CONTACT FOR PLANNING AND PROVISIONING	X				

TABLE XIII (CONT.)

SECTION	Q #	ISSUE/PROBLEM	C	R	I	YES	NO
CURRENT/POTENTIAL ALMIS APPLICATIONS (CONT.)	81	IS ALMIS USED TO DOCUMENT MINUTES FROM PROVISIONING AND PLANNING		X			
	82	SHOULD ALMIS BE USED TO DOCUMENT MINUTES FROM PROVISIONING AND PLANNING		X			
	83	IS ALMIS USED FOR SYSTEM CONFIGURATION MANAGEMENT		X			
	84	SHOULD ALMIS BE USED FOR SYSTEM CONFIGURATION MANAGEMENT		X			
	85	IS ALMIS USED TO REFERENCE APPLICABLE LEVELS OF MAINTENANCE	X				
	86	SHOULD ALMIS BE USED TO REFERENCE APPLICABLE LEVELS OF MAINTENANCE	X				
	87	IS ALMIS USED TO REFERENCE CONTRACTOR VERSUS ORGANIC REPAIR CAPABILITIES			X		
	88	SHOULD ALMIS BE USED TO REFERENCE CONTRACTOR VERSUS ORGANIC REPAIR CAPABILITIES			X		
	89	IS ALMIS USED TO DOCUMENT INVENTORY CONTROL PROCEDURES AND SUPPORT AGREEMENTS		X			
	90	SHOULD ALMIS BE USED TO DOCUMENT INVENTORY CONTROL PROCEDURES AND SUPPORT AGREEMENTS		X			
	91	IS ALMIS USED TO MONITOR WARRANTIES		X			
	92	SHOULD ALMIS BE USED TO MONITOR WARRANTIES			X		
	93	IS ALMIS USED TO MAINTAIN SCHEDULES WHICH MONITOR LEAD TIMES AND STAFF PROCEDURES		X			
	94	SHOULD ALMIS BE USED TO MAINTAIN SCHEDULES WHICH MONITOR LEAD TIMES AND STAFF PROCEDURES			X		

V. Conclusions and Recommendations

This chapter provides a brief summary of the research study, presents conclusions based on the analysis of the data, and outlines recommendations for management of JSAPs and future research.

Research Study Overview

This study was undertaken to validate literature which discussed general, ILS, and O&S issues/problems associated with JSAPs, and to identify current and potential applications of ALMIS for addressing these issues/problems.

Structured telephone interviews were conducted with Air Force upper and middle managers associated with JSAPs in order to gather data on their opinions regarding the joint service program issues/problems taken from literature. The analysis of the data was accomplished quantitatively using t-statistics to compute levels of agreement for Likert scaled questions and confidence intervals for yes/no questions. The researchers also qualitatively analyzed a number of respondents' comments on additional JSAP issues/problems and current/desirable ALMIS applications. The following section provides conclusions based on the analyzed data which was presented in Chapter IV.

Conclusions

The following conclusions are presented in relation to the research questions that guided the study.

Research Question 1. What are the major JSAP problems?

The findings of the research have validated some general and a number of specific ILS and O&S problems associated with JSAP management. Table XIV summarizes these validated problems under applicable categories (general, ILS, and O&S). The validated problems for each category are listed from highest to least respondent agreement.

TABLE XIV

Validated JSAP Issues/Problems

General

Coordinating Joint Service Requirements
Ineffective Interservice Communication
Management Personnel Turnover
Inadequate Planning
Geographically Dispersed Resources

ILS

Discontinued Service Involvement--Costly
Early Cut ILS Funds--Leads to Higher Program Costs
Inability to Enforce Adherence to Joint Regulations/Guidance
Joint Requirements and Agreements Omitted from JLSP
Resolving Management Issues at Lower Levels is Difficult
Problems Frequently Referred to Higher Headquarters
ILS Funds Not Permanently Available
Tailoring of DOD Regulations Creates Problems
Funding Category Differences
SISMS is Important; Yet 52% of Sample Familiar With It

O&S

Different Maintenance Levels Create Tech Order Problems
Lack of Configuration Management Increases Repair and System Downtime
Not Assigning Stock Numbers Early
Lack of Contingency Planning for Interim Contractor Repair
Underrepresentation at Provisioning Conferences

TABLE XIV (cont.)

O&S (cont.)
Resolving Contractor Versus Organic Repair Arrangements
Special Arrangements Not Specified Between Organic/Contractor/ and/or Third Party Maintenance With System Guarantor
Failure to Consider Multiservice Requirements
Unique C-E Support Requirements
Different Supply Systems Create Ordering/Shipping/Maintenance Delays
Overlooked Multiservice Requirements/Variables at Provisioning
Inadequate Provisioning Planning
Schedules Do Not Reflect Different Service Lead Times
Inadequate and Confusing Inventory Control Procedures
Assigning Stock Numbers--Difficult, Ineffectual
Inadequate Clarification of Cost Reimbursement Procedures at Provisioning
Non-Utilization of Warranty Coverage Increases Costs
SPMs Unaware of Detailed Operational Requirements
Maintenance for C-E Systems Difficult/Costly
Unclear Support Agreements Between PICAs/SICAs and Users
Spare Parts Not Funded Early
Inaccurate Configuration Management Documentation

In addition to the validated questionnaire issues and problems, the researchers concluded from qualitative responses that several issues also significantly impact upper and middle Air Force managers associated with JSAPs. These include:

a. Unique Service Requirements--Each service has unique operational/support requirements which result in joint service program management problems.

b. Different Service Procedures--The services have separate procedures for acquisition and support which results in management problems between the executive and secondary service(s).

c. Funding--Several differences in funding procedures between services were identified as creating problems for JSAP managers.

The results of the data analysis for research question 1 validated many of the issues/problems which were previously identified in the literature review of Chapter II. The researchers conclude that these issues and problems currently affect AF upper and middle managers associated with JSAPs.

Research Question 2. What are the current and potential applications of ALMIS for addressing identified JSAP problems?

The findings of the research identified limited use and potential for ALMIS to address JSAP problems. ALMIS was confirmed with a 90 percent confidence as currently addressing only two general JSAP problem areas. These were: (1) for monitoring funding and (2) to reference different levels of maintenance. Since these two areas were confirmed as creating problems for JSAPs, the researchers concluded that ALMIS is being used to generally address some funding and levels of maintenance issues, and that some of the associated specific issues have been agreed upon as creating problems for JSAP managers. However, no conclusions may be made for specific ALMIS applications to address these problems.

Analysis of data for ALMIS JSAP applications also showed the following potential use of ALMIS for addressing identified JSAP problems: (1) as a database for program guidance, (2) to document different points of contact for planning and provisioning, and (3) to make problem resolution easier at lower management levels. Since analysis of research question 1 (validated JSAP problems) reflected problems associated with guidance, documentation for planning and

provisioning, and problem resolution at lower management levels, the researchers concluded that the preceding potential ALMIS applications could address these JSAP management issues/problems.

Qualitative responses on current and potential ALMIS applications for addressing JSAPs reflected some concurrence (nine responses) that too many detailed applications would place an added burden on lower management levels to keep the database current. Therefore, the researchers concluded that additional capabilities should be implemented only if they facilitate management at all levels.

Qualitative analysis of potential and desirable capabilities of ALMIS for addressing JSAP issues/problems reflected limited respondent consensus for specific capabilities. However, several recommendations were expressed. These included: (1) improved communications applications, (2) Logistics Support Analysis applications, and (3) documentation of major program milestones. Recommendations for improved communications applications related to networking (linking databases together), electronic mail, expanded interface with upper management, and timely notification of events. Although these recommendations do not address specific JSAP issues/problems, they provide potential applications of ALMIS for JSAP management.

Based on the analysis, findings and conclusions the researchers make the following recommendations. These recommendations relate to the planned ALMIS upgrade, a new MIS across service lines, and possible further study.

Recommendations

The findings of this research effort have validated respondent opinion pertaining to some general and many specific problems associated with JSAP management. ALMIS users saw limited use of ALMIS to generally address JSAP problems and issues. Because ALMIS' primary purpose is not to address JSAP problems, the researchers recommend that ALMIS should not be expanded and upgraded to address all the identified problems.

In the near term, as ALMIS is evolving, the researchers recommend that an electronic mail capability be developed between all users. This capability should allow for easy access between users and different management levels. This added capability should not require additional database maintenance and may allow for a permanent mail file to log all incoming/outgoing correspondence. Because the current configuration permits mainly one-way upward channel reporting, this added capability should prove useful. This capability may facilitate problem resolution at lower management levels through improved communications. (This recommendation relates to findings from measurement questions 77 and 78.) This could improve requirements coordination (measurement question 2) between managers. This would also be beneficial since problems related to requirements were found to be the most significant general JSAP problem.

There are many problems that JSAPs experience due to their inherently different operational concepts, terminologies, requirements, and associated ways of doing business. A long-term approach to addressing these problems/issues cannot include ALMIS unless ALMIS

interfaces across service lines at each participating service location. This approach may not be desirable or feasible due to ALMIS' operational design, limited functions and current intended use. The researchers recommend that before interfaces are developed across service lines, interfaces first be fully developed between all Air Force offices. This includes increased ALC involvement and development of a network with other databases, such as the maintenance database at the ALCs and the funding database at headquarters. ALMIS should eventually interface with users of fielded systems.

The researchers recommend that the senior managers from the acquisition, development and using commands of the services consider the potential benefits of implementing a new "user friendly" MIS that will interface with all offices across service lines to address the problems/issues validated in this research. This new system should be designed and developed as part of a network which would allow rapid access to any and all databases and locations involved in and related to joint program management.

The researchers recommend another study be undertaken to determine the structural elements and desirable capabilities of a new system database which could function across service lines. The system design could be patterned to address the most significant issues and problems validated in this research. The general benefits of this new system would include increased and improved interservice communications, which could also make requirements coordination easier and better. The problems associated with geographically dispersed resources could be

alleviated and travel costs may be reduced. Management personnel turnover may be compensated for with corporate memory maintained on a permanent database. Overall program costs may be reduced due to improved JSAP management effectiveness.

The researchers further recommend that the Joint Policy Coordinating Group on multiservice ILS evaluate this research and consider implementating these recommendations to improve JSAP program management effectiveness.

Appendix A: Technical Review Letter

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (AU)
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433

REPLY TO ATTN OF: LSM

SUBJECT: Technical Review of Research Documents

TO:

1. Captains Mills' and Parsons' research proposal and structured interview are attached. Your knowledge of acquisition logistics management for joint service acquisition programs would be useful in validating their structured interview.

2. Please review the proposal and structured interview. You may provide your comments directly on the attached documents. We particularly need your review of the structured interview. The structured interview should be directed at the problems and issues discussed in the literature review of the proposal. In particular, we would appreciate your review of these documents to determine if

a. The issues and problems described in the research proposal are accurate and clear, and

b. The structured interview questions are clearly and accurately stated to reflect the problems and issues identified in the literature review of the proposal.

If you are unfamiliar with the Acquisition Logistics Management Information System, please omit those sections and questions from your review. Time is of the essence, and we would appreciate a reply by 15 June 1984.

2. Please do not disseminate any portion of these documents. We do not want potential respondents to be exposed to this material before being interviewed. If you have any questions, please call me at AV 785-5096 or -4943. Thank you for your cooperation.

Arthur L. Rastetter III

ARTHUR L. RASTETTER, III, Major, USAF
Assistant Professor of Logistics Management
School of Systems and Logistics

2 Atch
1. Research proposal
2. Structured Interview

Appendix B: Survey Letter and Instrument

Letter

02 JUL 1984

From: AFIT/LSM

Subject: Structured Telephone Interview Instructions

To: Respondent

1. You have been selected as a respondent for the thesis research of Captains Mills and Parsons due to your experience with Joint Service Acquisition Programs (JSAPS) and/or the Acquisition Logistics Management Information System (ALMIS). Your independent responses to the survey questions are extremely valuable to this research project. Please do not discuss your responses with other respondents until the interviews have been completed.

2. Request you complete the enclosed questionnaire and keep it available for the structured telephone interview. The telephone interview may be conducted when the researchers next contact you, or if you desire another time, an appointment will be coordinated. In order to expedite the interview, request you complete the questionnaire in advance and make a note of any questions you may have.

3. Your responses to this interview survey will be kept strictly confidential in accordance with the Privacy Act of 1974. It is not necessary to return the questionnaire upon completion of the telephone interview. Your participation and cooperation in this research effort is greatly appreciated.

Arthur L. Rastetter III

ARTHUR L. RASTETTER, III, Major, USAF
Assistant Professor of Logistics Management
School of Systems and Logistics

Atch
Interview Questionnaire

Survey Instrument

STRUCTURED INTERVIEW

INTRODUCTION

I'm Captain Mills / Captain Parsons from the Air Force Institute of Technology conducting thesis research on Joint Service Acquisition Programs (JSAPs). You have been selected as a potential respondent due to your affiliation and experience with JSAPs. This survey should take approximately 20 - 30 minutes to complete and would be extremely valuable to the researcher's data gathering efforts for their thesis. Your answers and comments will be kept strictly confidential and are subject to the privacy act. If you are willing to participate we can conduct the interview at this time, or, if this time is inconvenient we can set up a mutually agreeable date and time to complete the survey. Appointment Date and Time: .

RESPONDENT INFORMATION

Name and Rank:
Organization:
Job Title and AFSC (if applicable):
Current and past JSAPs managed (names):
Years Experience with JSAPs:
Former Experience (AFSCs and years serving in each):

The following is a list of acronyms used throughout the survey for referral:

AFLC - Air Force Logistics Command
ALC - Air Logistics Center
ALMIS - Acquisition Logistics Management Information System
C-E - Communications-Electronics
DPML - Deputy Program Manager for Logistics
ILS - Integrated Logistics Support
JLSP - Joint Logistics Support Plan
JSAP - Joint Service Acquisition Program
MIPR - Military Interdepartmental Purchase Request
O&S - Operations and Support
PICA - Primary Inventory Control Activity
SICA - Secondary Inventory Control Activity
SISMS - Standard Integrated Support Management System
SPM - System Program Manager (AFLC - ALC)
SPO - System Program Office

The questions are divided into four sections. Some answers will indicate your level of agreement with a statement on a five

level scale from strongly disagree to strongly agree. The five levels are strongly disagree (SD), disagree (D), indifferent (I), agree (A), and strongly agree (SA). There are also "don't know" (DK) and "not applicable" (N/A) responses available if appropriate. The other answer responses are yes (Y), no (N), or don't know (DK). Before we begin the interview do you have any questions?

Section I - General Issues

1. Ineffective interservice communication is a persistent JSAP problem.

SD D I A SA DK N/A

2. Coordinating joint service requirements is a persistent JSAP problem.

SD D I A SA DK N/A

3. Inadequate planning is a persistent JSAP problem.

SD D I A SA DK N/A

4. Geographically dispersed resources (i.e. contractors, logistics support, managers, technical staff, etc.) is a JSAP problem.

SD D I A SA DK N/A

5. Management personnel turnover creates JSAP problems.

SD D I A SA DK N/A

6. Are there any general concerns or problems you encounter in managing JSAPs?

Y N N/A

IF YES - What are they? _____

_____

_____

7. Of the general problems or issues mentioned above, which one creates the most difficulty in managing your programs?

_____

Section II - Integrated Logistics Support Issues

8. There is a wide range of program guidance available for management of JSAPs.

SD D I A SA DK N/A

9. If agree with #8: This diversity creates problems for JSAP managers.

SD D I A SA DK N/A

10. DOD regulations are often tailored by managers to meet individual and service needs for JSAPs.

SD D I A SA DK N/A

11. If agree with #10: This individual tailoring creates problems for JSAP managers.

SD D I A SA DK N/A

12. Have you ever heard of the Standard Integrated Support Management System (SISMS) Manual?

Y N

If "No" continue with # 15.

13. I rarely use the SISMS manual as a reference for JSAP management.

SD D I A SA DK N/A

14. I do not consider the SISMS manual useful or important for JSAP management.

SD D I A SA DK N/A

15. Are you currently involved in managing a communications-electronics (C-E) program (includes navaids/avionics and other data systems)?

Y N

If "No" continue with # 19

16. The guidance for C-E Programs is vague and difficult to understand

SD D I A SA DK N/A

17. There is little follow-up guidance for acquiring and developing command-and-control programs (receiving user feedback during developmental processes).

SD D I A SA DK N/A

18. The vagueness, generality, and lack of standardization of C-E guidance is a problem for effective and efficient JSAP management.

SD D I A SA DK N/A

19. The Joint Logistics Support Plan (JLSP) is a comprehensive planning document.

SD D I A SA DK N/A

20. For your program(s), joint requirements are not fully detailed in the JLSP.

SD D I A SA DK N/A

21. Joint requirements and agreements omitted from the JLSP produce problems later in a program.

SD D I A SA DK N/A

22. There are problems that result due to the inability to enforce adherence to joint service regulations and guidance.

SD D I A SA DK N/A

23. Integrated Logistics Support funds are not available on a permanent basis for specific ILS needs.

SD D I A SA DK N/A

24. Your SPO director "redirects" ILS funds for other than ILS purposes?

SD D I A SA DK N/A

25. The unavailability of "permanent" ILS funds produces problems for JSAPs.

SD D I A SA DK N/A

26. If ILS funds are cut early in a program, the total program cost will be higher in the long run.

SD D I A SA DK N/A

27. JSAPs experience problems with the interservice transfer of funds due to inadequate procedures?

SD D I A SA DK N/A

28. Problems occur with the transfer of funds on the Military Interdepartmental Purchase Request (MIPR)?

SD D I A SA DK N/A

29. Discontinuance of service involvement (cancellation of orders) is costly to the executive service without adequate provisions for the cancellation.

SD D I A SA DK N/A

30. Cancellation clauses do not exist in contracts to cover discontinued service involvement.

SD D I A SA DK N/A

31. Funding category differences between services create problems for transferring funds and purchase and support of equipment.

SD D I A SA DK N/A

32. Resolving interservice problems at lower management levels (ie. DPML level) is difficult.

SD D I A SA DK N/A

33. JSAP problems are frequently referred to higher headquarters for resolution.

SD D I A SA DK N/A

34. Do you experience any additional major ILS problems for JSAPs not mentioned in this interview survey? _____

_____

_____

35. What do you consider to be the major ILS problem for JSAPs?

_____

Section III - Operations and Support Issues

36. Adequate planning before and during the provisioning conference is often lacking.

SD D I A SA DK N/A

37. Problems result when the System Program Manager(s) (AFLC representatives from the ALC) is/are underrepresented with technical support at provisioning conferences.

SD D I A SA DK N/A

38. Significant multi-service requirements and variables are sometimes overlooked at provisioning.

SD D I A SA DK N/A

39. Failure to consider multi-service requirements and variables adversely affect O&S.

SD D I A SA DK N/A

40. Accurate and timely documentation of provisioning meetings are not routinely available to all participants.

SD D I A SA DK N/A

41. SPMs are generally unaware of detailed operational level information pertaining to JSAPs.

SD D I A SA DK N/A

42. Different levels of maintenance and repair between services create problems with technical order availability and development.

SD D I A SA DK N/A

43. Resolving contractor repair versus organic repair capabilities and arrangements between services creates problems.

SD D I A SA DK N/A

44. Lack of contingency planning for interim contractor repair creates support problems.

SD D I A SA DK N/A

→

45. Configuration management documentation for JSAPs is is often inaccurate.

SD D I A SA DK N/A

46. Documenting interchangeable parts for joint systems is neither timely nor accurate.

SD D I A SA DK N/A

47. Repair time and system down time increase when configuration management is lacking.

SD D I A SA DK N/A

48. Inventory control procedures between services are inadequate and confusing.

SD D I A SA DK N/A

49. Support agreements are generally unclear between PICAs/SICAs/ and users.

SD D I A SA DK N/A

50. Depot Maintenance Source of Repair agreements (for your program(s)) are generally unclear.

SD D I A SA DK N/A

51. Assigning special stock numbers for different services' equipment is difficult and ineffectual once accomplished.

SD D I A SA DK N/A

52. Problems occur when stock numbers are not assigned early in the program to meet multi-service requisition and support needs.

SD D I A SA DK N/A

53. Differences in the supply systems of each service create delays in ordering, shipping and maintaining parts and equipment.

SD D I A SA DK N/A

54. Cost reimbursement procedures between services are not adequately clarified at provisioning.

SD D I A SA DK N/A

55. Spare parts are generally not funded early in a program.

SD D I A SA DK N/A

56. Total system support costs are increased when early and full use of warranty coverage is not utilized.

SD D I A SA DK N/A

57. Problems occur if the contract does not specify special arrangements between organic and/or 3rd party maintenance sources with the system guarantor.

SD D I A SA DK N/A

58. Schedules do not reflect different lead times created by differing staff processes of other services.

SD D I A SA DK N/A

59. Are you currently involved in managing a communications-electronics (C-E) JSAP?

Y N

If "No" go to # 63

60. Unique support requirements for C-E systems create ongoing O&S problems.

SD D I A SA DK N/A

61. There is little commonality of parts between operationally "identical" C-E systems due to inadequately documented field repairs and changes.

SD D I A SA DK N/A

62. Maintenance for C-E systems is difficult and costly due to special support requirements and system differences.

SD D I A SA DK N/A

63. What do you consider the major O&S problem to be for JSAPs?

_____

64. What major O&S problem(s) exist for JSAPs that are not mentioned in this survey? _____

_____

Section IV - Current / Potential ALMIS Applications

This final section of the survey should only be completed by respondents who are familiar with the purpose, function, capabilities, or use of the Acquisition Logistics Management Information System (ALMIS).

65. Is ALMIS being used as a data base to specify applicable program guidance used for management of JSAPs?

Y N DK

66. Should ALMIS be used for this purpose?

Y N DK

67. Is ALMIS being used to coordinate requirements for input into the JLSP?

Y N DK

68. Should ALMIS be used for this purpose?

Y N DK

69. Is ALMIS being used to monitor funding for programs?

Y N DK

70. Should ALMIS be used for this purpose?

Y N DK

71. Is ALMIS being used to monitor the interservice transfer of funds?

Y N DK

72. Should ALMIS be used for this purpose?

Y N DK

73. Is ALMIS being used to monitor contractor performance of specific contract deliverables, including cancellation clauses?

Y N DK

74. Should ALMIS be used for this purpose?

Y N DK

75. Is ALMIS being used to monitor funding category differences between services to assure proper payments?

Y N DK

76. Should ALMIS be used for this purpose?

Y N DK

77. Is ALMIS being used in a way that makes JSAP problem resolution easier at the lower management levels?

Y N DK

78. Could ALMIS be used for this purpose?

Y N DK

79. Is ALMIS being used to document the different points of contact for planning and provisioning?

Y N DK

80. Should ALMIS be used for this purpose?

Y N DK

81. Is ALMIS being used to document minutes of proceedings from provisioning and planning conferences?

Y N DK

82. Should ALMIS be used for this purpose?

Y N DK

83. Is ALMIS being used for system configuration management including documentation of part control numbers?

Y N DK

84. Should ALMIS be used for this purpose?

Y N DK

85. Is ALMIS being used to reference the applicable levels of maintenance?

Y N DK

86. Should ALMIS be used for this purpose?

Y N DK

87. Is ALMIS being used to reference contractor versus organic repair capabilities?

Y N DK

88. Should ALMIS be used for this purpose?

Y N DK

89. Is ALMIS being used to document inventory control procedures and support agreements?

Y N DK

90. Should ALMIS be used for this purpose?

Y N DK

91. Is ALMIS being used to monitor warranties available and purchased for JSAPs?

Y N DK

92. Should ALMIS be used for this purpose?

Y N DK

93. Is ALMIS being used to maintain schedules which monitor lead times and staffing processes between services?

Y N DK

94. Should ALMIS be used for this purpose?

Y N DK

95. Are there any current or potential applications of ALMIS for JSAP management that have not been mentioned in this survey?

Appendix C: Computer Program for Analysis of Questionnaire Sections I-III

```
C     COMPUTER PROGRAM FOR ANALYSIS OF QUESTIONNAIRE SECTIONS I-III

C      KEY:
C      S = SUM
C      N = TOTAL NUMBER OF RESPONSES FOR QUESTION
C      F1 = STRONGLY DISAGREE RESPONSES
C      F2 = DISAGREE RESPONSES
C      F3 = INDIFFERENT RESPONSES
C      F4 = AGREE RESPONSES
C      F5 = STRONGLY AGREE RESPONSES
C      T = TEST STATISTIC
C      E = EXPECTED VALUE
C      V = VARIANCE
C      Q = QUESTION NUMBER
C      N = NUMBER OF TOTAL RESPONSES
C
       INTEGER S,F1,F2,F3,F4,F5,E,Q,N,C
       REAL    V,V1,V2,V3,V4,V5,T
C
       V=0.
       T=0.
       Q=01
       C=1
       K=1
 50    FORMAT ('Q#   #RES   SD    D    I     A    SA    T')
       PRINT 50
       PRINT*,' '
 20    If (Q .NE. 999) Then
       READ*,N,F1,F2,F3,F4,F5
       S = F1+(2*F2)+(3*F3)+(4*F4)+(5*F5)
       E = 3*N
       V1 = F1*((1*N-S)**2)
       V2 = F2*((2*N-S)**2)
       V3 = F3*((3*N-S)**2)
       V4 = F4*((4*N-S)**2)
       V5 = F5*((5*N-S)**2)
       V = (V1+V2+V3+V4+V5)/(N*(N-1))
       T = (S-E)/SQRT (V)
       PRINT*,Q,'  ',N,'  ',F1,'  ',F2,'  ',F3,'  ',F4,'  ',F5,'  ',T
       C=C+1
       Read*,Q
       GO TO 20
       ELSE
       ENDIF
       END
```

Appendix D: Computer Program for Analysis of Questionnaire Section IV

```
      COMPUTER PROGRAM FOR ANALYSIS OF QUESTIONNAIRE SECTION IV

      INTEGER Q,neg,n,R
      REAL lolim,uprlim,a,var1,var2,var3,n1,R1

      Q=65
      neg=0
      n=0
      n1=0.
      R=0
      R1=0.
      var1=0.
      var2=0.
      var3=0.
      lolim=0.
      uprlim=0.
      a=1.645

      PRINT*,'Q#    #Res    #Yes    #No       Lolim          Uprlim'
      PRINT*,' '
20    If (Q .NE. 999) THEN
      Read*,n,R,neg
      n1=n
      var1=n1/(n1+a**2)
      var2=(R/n1)+(a**2/(2*n1))
      var3=a*SQRT(((R*(n1-R))/n1**3)+(a**2/(4*(n1**2))))
      lolim=var1*(var2-var3)
      uprlim=var1*(var2+var3)

     PRINT*,Q,'  ',n,'   ',R,'   ',neg,'   ',lolim,'   ',uprlim
     Read*,Q
     GO TO 20
     ELSE
     ENDIF
     END
```

Appendix E: Results for Questionnaire Sections I-III

RESULTS FOR QUESTIONNAIRE SECTIONS I-III

Q#	#RES	SD	D	I	A	SA	T-STAT	YES	NO
1	99	Ø	15	3	6Ø	21	9.5273		
2	98	Ø	9	2	43	44	13.9116		
3	97	Ø	25	11	49	12	4.8176		
4	97	2	22	14	44	15	4.5479		
5	96	Ø	15	11	41	29	8.4196		
8	8Ø	2	31	6	39	2	.8613		
9	41	Ø	7	4	26	4	4.773Ø		
1Ø	81	2	12	4	6Ø	3	6.3551		
11	63	1	14	7	36	5	3.8513		
12	1ØØ							52	48
13	48	5	12	3	24	4	1.1834		
14	41	6	17	15	3	Ø	-4.8961		
15	1ØØ							63	37
16	59	1	24	11	21	2	-.1313		
17	58	6	22	5	24	2	-.3377		
18	58	1	18	9	29	1	1.4991		
19	7Ø	Ø	1Ø	13	42	5	6.Ø954		
2Ø	68	2	22	1Ø	3Ø	4	1.3858		
21	71	Ø	7	4	49	11	9.7697		
22	84	Ø	8	9	52	15	9.9358		
23	82	Ø	26	7	32	17	3.8525		
24	81	8	36	5	25	7	-1.1848		
25	72	Ø	14	1Ø	39	9	5.3662		
26	85	2	1	4	46	32	14.2982		
27	72	2	37	8	19	6	-1.Ø67Ø		
28	78	1	46	9	17	5	-2.3134		
29	81	Ø	4	2	45	3Ø	15.296Ø		
3Ø	47	1	18	7	17	4	.67Ø2		
31	78	Ø	26	11	34	7	2.4169		
32	96	1	25	7	44	19	5.Ø476		
33	87	2	21	5	45	14	4.69Ø6		
36	76	1	18	6	44	7	4.3589		
37	74	Ø	7	6	34	27	1Ø.357Ø		
38	73	1	13	3	52	4	5.9Ø6Ø		
39	84	Ø	3	2	63	6	6.91Ø4		
4Ø	74	2	3Ø	9	33	Ø	-.1179		
41	75	1	24	1Ø	36	4	2.Ø553		
42	95	Ø	7	1	57	3Ø	14.54ØØ		
43	91	Ø	14	5	57	15	8.5297		
44	86	Ø	8	7	52	19	1Ø.7216		
45	72	Ø	26	12	27	7	1.6879		
46	59	1	26	13	17	2	-.943Ø		
47	79	1	2	4	54	18	13.7937		
48	65	Ø	17	7	31	1Ø	4.Ø262		
49	68	1	24	8	27	8	1.855Ø		
5Ø	61	2	31	7	16	5	-1.Ø399		
51	57	1	15	2	29	9	3.242Ø		
52	76	Ø	4	4	55	13	13.3182		
53	73	Ø	17	1	39	16	5.9938		
54	58	Ø	18	6	28	6	2.7776		
55	87	2	34	3	39	9	1.7782		
56	6Ø	4	15	7	26	8	2.Ø683		
57	49	Ø	4	4	35	6	8.467Ø		
58	77	Ø	2Ø	9	38	1Ø	4.24Ø9		
59	98							6Ø	38
6Ø	53	1	6	4	39	3	6.1799		
61	42	3	21	4	12	2	-1.5352		
62	52	1	13	11	25	2	2.Ø391		

Appendix F: Confidence Interval Test Results for Questionnaire Section IV

CONFIDENCE INTERVAL TEST RESULTS FOR QUESTIONNAIRE SECTION IV

Q#	#Res	#Yes	#No	LoLim	UpLim
65	40	25	15	.4950	.7392
66	42	31	11	.6146	.8328
67	33	7	26	.1193	.3486
68	35	18	17	.3794	.6472
69	47	39	8	.7223	.9013
70	47	40	7	.7467	.9172
71	37	6	31	.0862	.2841
72	39	16	23	.2907	.5415
73	42	9	33	.1292	.3340
74	43	18	25	.3033	.5436
75	40	3	37	.0304	.1735
76	36	14	22	.2675	.5258
77	34	9	25	.1610	.4031
78	35	27	8	.6378	.8661
79	41	24	17	.4574	.7028
80	44	34	10	.6548	.8590
81	40	0	40	.0000	.0634
82	42	8	34	.1108	.3077
83	42	0	42	.0000	.0605
84	42	7	35	.0930	.2807
85	43	34	9	.6730	.8740
86	40	31	9	.6510	.8641
87	41	21	20	.3871	.6358
88	40	24	16	.4702	.7171
89	39	4	35	.0469	.2098
90	38	13	25	.2298	.4754
91	39	8	31	.1196	.3289
92	39	15	24	.2680	.5163
93	40	10	30	.1557	.3760
94	39	19	20	.3607	.6153

Appendix G: Survey Comments

R = Respondent

1. Ineffective interservice communication is a persistent JSAP problem.

   R 11 - Agrees in order of precedence:
   a. Cultural.
   b. Attitudinal.
   c. Structural.
   d. Physical.
   R 92 - Applies to service parochial concerns.

3. Inadequate planning is a persistent JSAP problem.

   R 10 - Feels inadequate planning is an occasional but not a consistent problem.
   R 11 - Believes there are too many plans.
   R 67 - Unfair question "inadequate" depends on the service.
   R 92 - Problem is more with coordinating the planning.

4. Geographically dispersed resources (i.e., contractors, logistics support, managers, technical staff, etc.) is a JSAP problem.

   R 11 - Split programs guarantee problems.
   R 77 - A problem for all programs, not just JSAPs.

5. Management personnel turnover creates JSAP problems.

   R 10 - Management personnel turnover not a unique problem for JSAPs.
   R 11 - True for all programs.
   R 67 - Not only applicable to joint programs - all programs.

6. Are there any general concerns or problems you encounter in managing JSAPs?

   R 1 - a. Lack of enforcement of policies and procedures.
   b. Lack of adequate computer interfaces.
   c. Fielding systems too fast.
   R 2 - Number one problem is operational requirements not coalesced beforehand.
   R 3 - Lack of knowledgeable operations or support personnel.
   R 5 - POM process works poorly for JSAPs and creates funding problems.

R 6 - Each service has its own perspective or frame of reference.
R 7 - a. Ill-defined requirements.
b. Different service needs.
c. Program changes.
d. Funding and stability.
e. PICA/SICA relationship.
R 8 - The following agency/service generally has a low priority and lack of support.
R 9 - Different service requirements and conflicts result due to real interests.
R 10 - Resolving service policy differences which drive conflicting requirements.
R 11 - a. Politically driven.
b. JSAPs not requirements oriented (invented by OSD).
c. Managed by edict.
d. Micro-management by OSD.
e. Grave friction loss getting underway.
f. Rice bowls - real and imagined agreement.
R 12 - a. Different requirements between services.
b. Who does the work as the lead service.
c. Upper direction lacking from DoD on specific arrangements.
R 13 - a. Individual service-peculiar requirements.
b. Combining service requirements.
c. Funding.
d. Parochial service views.
R 14 - Congressional support.
R 15 - When funding between two or more sources, there are expenditure problems. The lead service expends first. The Air Force expenditure rate sometimes looks bad when they are not the lead service.
R 16 - a. Getting agreement on program requirements.
b. Different program priorities between services - affects service funding support.
R 17 - Air Force requirements need to be stated better.
R 18 - Lack of definition of joint operational concept and requirements.
R 20 - Getting initial agreemnent on paper hardest due to politics.
R 21 - Difficult for services to get their unique requirements if they are not the lead service.
R 22 - a. Programs imposed by OSD without corresponding service committment (forced into it) produces apathetic response.
b. Incompatable mission requirements.
c. Uncertain outyear funding.
R 23 - Clarification of roles and responsibilities between services.
R 26 - Determination of program requirements and getting approval for funding. Agreeing on mutual systems and common support is difficult.

R 27 - a. Depot Maintenance Interservicing (DMI).
b. Funding.
c. Matching requirements (peculiarities/interfaces).
d. Tech orders/levels of maintenance.

R 28 - a. Changing requirements.
b. Funding as used by command.

R 30 - a. System differences in service requirements.
b. Should require that some programs not be JSAPs.
c. Planning.

R 31 - a. Insuring Air Force requirements are taken care of if the Army is the lead service.
b. Funding by the Army when they are the lead service. Air Force is vulnerable to unfunded requirements that occur due to funding changes.

R 32 - a. Lack of coordination and communication.
b. OSD management.
c. Inflexibility of each service to charge due to own requirements.

R 35 - Lack of agreement at higher management levels and a lack of backing for those agreements.

R 36 - Service parochialism - essential disregard/disinterest of other services concerns by senior managers (except those actually assigned within the joint program office).

R 39 - Parochialism on the part of the participants.

R 41 - Executive service not aggressively working participating service requirements/problems.

R 44 - Different maintenance concepts.

R 46 - Who is really in charge?

R 47 - Who's in charge? Services or program managers? Equal participation is questionable.

R 48 - a. Making early maintenance and depot funding decisions.
b. TDY funding.

R 49 - Enormous coordination required.

R 51 - Specific responsibilities of the executive service unclear.

R 53 - a. Terminology.
b. Organizational differences.
c. Communications between services.

R 54 - a. Philosophical differences between services.
b. Executive agent has too much influence in a program. A neutral agency such as the Defense Communications Agency should be the executive agent during acquisition and transition to PICA and SICA.

R 56 - Vocabulary and acronym differences between services.

R 57 - Understanding the alignment and functions of the other (Navy) service.

R 58 - a. Lack of sufficient joint service regulations.
b. Interservicing with joint service decision tree analysis.
c. Organic versus contractor support issues.
d. Services have totally independent processes.

R 59 - Using a Navy contract to procure an Air Force System.

R 61 - Dealing with Navy personnel who believe their way is best. Their specialists support programs with full contingents. Air Force is limited. Navy has a womb to tomb concept and no Program Management Responsibility Transfer (PMRT). This is a major obstacle for the Air Force to overcome.

R 62 - a. Peculiar service requirements.
b. TDY funding inadequate for all activities.

R 63 - Requirements of each service seem to override cost effectiveness goals of joint acquisitions in some cases.

R 64 - a. Terminology and methods between the Navy and the Air Force.
b. Workable configuration management systems are a problem.

R 65 - a. Changing requirements.
b. Untimely response to suspenses.
c. Untimely decision process.

R 66 - Getting agreement on issues for individual service needs.

R 67 - A lot of money spent on contractor repair services because they (contractors) are late identifying special support equipment. It appears they do it purposely to make more money.

R 68 - Too many new people (inexperienced) brought into joint program offices. First they should learn: (1) logistics procedures and (2) joint issues. They should be trained as logisticians first.

R 69 - Different service departments have different:
a. Strategies.
b. Terminologies.
c. Approaches.
Therefore, requirements determination is always a problem.

R 70 - Maintenance planning with Army for five levels of maintenance.

R 72 - Separate ways to manage logistics not interservice compatible.

R 73 - Difference in terminology between the Army and Air Force.

R 74 - The overall PICA/SICA relationship.

R 75 - a. Problems of interservice programs with non-DoD agencies.
b. No guidance or regulations exist for non-DoD interservicing.
c. No binding guidance of any kind exists.

R 77 - a. Different policies within individual services regarding acquisition strategy.
b. Funding problems.

R 79 - Discrepancies in separate regulations create confusion and total indifference to logistics problems.

R 80 - a. Location of counterpart.
b. Documentation coordination.
c. Chain of command.

R 81 - Getting users to validate requirements. User first sold on equipment by the contractor. These original requirements lead to future narrowness/flexibility loss!

R 83 - Different maintenance organizations, requirements and ways of operating with the Navy.
R 84 - a. Different maintenance approaches.
b. Lead service attitude toward participating service's approaches and requirements.
c. Different system requirements per service.
R 85 - Different requirements and procedures. Too much time spent interpreting the difference.
R 86 - An MOA for a joint program was developed and signed, then the Army changed requirements at the last minute and requested Air Force to manage program.
R 87 - Personalities - different people don't get along across service lines.
R 89 - a. Changing requirements.
b. Funds cut in multi-year procurements.
R 92 - Key for success is compromise and clearly defined requirements.
R 94 - Executive service pushes own requirements over other services.
R 95 - a. Different tactical operational concepts.
b. Maintenance concepts/philosophies.
c. Personnel structures.
d. Acquisition regulations.
R 96 - Lack of committment and changing requirements.
R 97 - Cataloguing, interface problems, coding, maintenance philosophies, Technical Order requirements, support priorities.
R 98 - Difficult to understand other service procedures.
R 99 - a. Inadequate supply procedures.
b. Funding.
c. Transfer of funds.
R100 - a. Lack of requirements definition - worse for JSAPs.
b. Changing requirements.
R101 - a. Timely identification of requirements.
b. Budget information for management overview.
R102 - Question 2.

7. Of the general problems or issues mentioned above, which one creates the most difficulty in managing your programs?

R 1 - Question 6. Fielding systems too fast.
R 2 - Reporting requirements are different between services.
R 3 - Lack of ability to define requirements.
R 4 - Question 2.
R 6 - Determining own best requirements difficult. Complications from different service philosophies for logistics support.
R 7 - Question 6. Funding and stability.
R 8 - The following agency/service generally has a low priority and lack of support.
R 9 - Question 6. Different service requirements and conflict due to real interests.

R 10 - Question 1. Communication and early identification of requirements, not a unique problem, just more pronounced for JSAPs.
R 11 - Question 6. Rice bowls - agreement on what to be done (requirements).
R 12 - Sorting out requirements for a system (i.e., system specification).
R 13 - Question 6.
  a. Individual service - peculiar requirements.
  b. Combining service requirements.
  c. Funding.
  d. Parochial service views.
R 14 - Financial planning. Congress/staff and budget cuts.
R 15 - Service concurrence.
R 16 - Funding stability.
R 17 - Field too many systems without adequate logistics support.
R 18 - Requirements.
R 20 - Question 4.
R 21 - Agreement among services on requirements.
R 22 - Question 6.
  a. Programs imposed by OSD without corresponding service committment (forced into it) produces apathetic response.
  b. Incompatible mission requirements.
  c. Uncertain outyear funding.
R 23 - Question 1.
R 24 - Question 2. *Coordinating operational requirements.*
R 26 - Question 1.
R 27 - Funding/management/service peculiarities.
R 28 - Funding.
R 30 - Question 3.
R 31 - Near term - funding. Long term - inadequate definition/coverage of Air Force requirements.
R 32 - Questions 1 and 2. Coordination and communication.
R 34 - Question 2.
R 36 - Question 4.
R 37 - Question 2.
R 38 - Divergent interest between services to hidden agendas/problems.
R 39 - Question 5.
R 41 - Question 6. Executive service not aggressively working participating service requirements/problems.
R 43 - Question 1.
R 44 - Questions 1 and 4.
R 46 - Executive service not always in charge and often can't resolve differences.
R 47 - Communication/coordination. Reluctance to share information with who is in charge.
R 48 - Question 5.
R 49 - Question 2.
R 50 - Coordination and communication.

R 51 - Different maintenance concepts.
R 52 - Question 5.
R 53 - Question 1. Communication.
R 54 - Question 3.
R 55 - Question 3.
R 56 - Question 6. Vocabulary and acronym differences between services.
R 57 - Question 6.
  a. Lack of sufficient joint service regulations.
  b. Interservicing with joint service decision tree analysis.
  c. Organic versus contractor support issues.
  d. Services have totally independent processes.
R 59 - Question 6. Using a Navy contract to procure an Air Force system.
R 60 - Question 2, sometimes.
R 61 - Learning Navy background, differences, requirements, textual and language differences are problems.
R 62 - Question 1.
R 63 - Communications is difficult due to each service's requirements.
R 64 - Question 6.
  a. Terminology and methods between the Navy and the Air Force.
  b. Workable configuration management systems are a problem.
R 65 - Question 6.
  a. Changing requirements.
  b. Untimely response to suspenses.
  c. Untimely decision process.
R 66 - Getting services to standardize their ways of doing business.
R 68 - a. Provisioning - no service does it the same way. The Navy buys spares early.
  b. Different maintenance concepts makes support difficult.
  c. Deployment concepts.
R 69 - Requirements definition.
R 70 - Question 3.
R 71 - Question 5.
R 72 - Question 1.
R 73 - Question 6. Difference in terminology between the Army and Air Force.
R 74 - Question 1.
R 75 - For interservice depot selection, the agency imposes Joint Depot Maintenance Analysis Group (JDMAG) recommendations. FAA does not have proper representation in JDMAG. It's a waste of time and money for a JDMAG study in this case.
R 77 - Individual service policies/procedures.
R 78 - Question 1.
R 79 - Supply support between services.
R 80 - Locating and coordinating with counterpart.

R 81 - Question 1 - between all services.
R 82 - Question 1.
R 83 - Question 6. Different service methods.
R 84 - Question 6. Lead service attitude toward other services.
R 85 - Question 1. Communications and procedures.
R 86 - Question 2.
R 87 - Question 1.
R 88 - Question 4.
R 89 - Funding by other services when the Air Force is the lead service.
R 90 - Question 1.
R 92 - Coordination and integration of requirements, particularly with the Navy.
R 93 - Agreement on unstable system requirements.
R 94 - Question 5.
R 97 - Support problems and priorities.
R 98 - Different procedures makes accomodation of requirements difficult. Requires translation.
R 99 - Question 6. Program funding.
R100 - Question 6. Changing requirements.
R101 - Questions 2 and 6.
a. Timely identification of requirements.
b. Budget information for management overview.
R102 - Question 2.

8. There is a wide range of program guidance available for management of JSAPs.

R 11 - Too much guidance.
R 35 - No operating instructions available.
R 64 - No guidance on hand.

9. If agree with #8; this diversity creates problems for JSAP managers.

R 11 - True within context of too much guidance.
R 18 - Agreed with question from a lead service perspective.
R 92 - These are inherent differences.

11. If agree with #10; this individual tailoring creates problems for JSAP managers.

R 11 - Problems with the Army Charters and the Air Force Program Management Directives (PMDs).
R 20 - Agreed if not tailored for own program.

14. I do not consider the SISMS manual useful or important for JSAP management.

R 92 - Considers SISMS a menu to start from.

16. The guidance for C-E Programs is vague and difficult to understand.

R 22 - Guidance is more difficult to execute than understand.

17. There is little follow-up guidance for acquiring and developing command-and-control programs (receiving user feedback during developmental processes).

R 35 - Depends on the manager and the program.
R 95 - Not SPO initiated but needs to be.
R102 - Sometimes too much feedback.

18. The vagueness, generality, and lack of standardization of C-E guidance is a problem for effective and efficient JSAP management.

R 22 - True for C-E anywhere, not just joint programs.
R 95 - Not considered a major problem.

19. The Joint Logistics Support Plan (JLSP) is a comprehensive planning document.

R 6 - Felt most requirements omitted from the JLSP and that this is a very important document.
R 29 - Agrees with statement in theory, but not in actuality.
R 64 - JLSP is not a "how-to" document. It is top level general guidance.
R 67 - No operational requirements in JLSP.
R 95 - Not a research and development (R&D) issue, but following production it is.

21. Joint requirements and agreements omitted from the JLSP produce problems later in a program.

R 20 - Usually occurs because R&D programs take so long that new and better ways always become available.
R 35 - Problems already exist.
R100 - Considers the JLSP a "square filler."

22. There are problems that result due to the inability to enforce adherence to joint service regulations and guidance.

R 10 - enforcement depends on who gets involved.

23. Integrated Logistics Support funds are not available on a permanent basis for specific ILS needs.

R 10 - ILS funds can be re-programmed. Baselining process looks at logistics funds. This process goes through a baselining authority.
R 64 - Sees more redirection of effort than dollars.
R 67 - Agreed in the case of spares.

24. Your SPO director "redirects" ILS funds for other than ILS purposes?

R 44 - Funding drops off first more often than redirection.
R 47 - Question applies to the services redirection of ILS funds.
R 92 - Requires a "trust me" perspective.

25. The unavailability of "permanent" ILS funds produces problems for JSAPs.

R 10 - No funds are "permanent."
R 11 - No such thing as "permanent."
R 13 - Problem with cuts to ILS funds from higher budget authority decisions.
R 18 - A control issue instead of availability.
R 88 - No funds are permanent.
R 92 - Cannot afford to have "fenced off" money.

26. If ILS funds are cut early in a program, the total program cost will be higher in the long run.

R 2 - Question applies to any program not just JSAPs.
R 7 - Believes life cycle costs increase at a ratio of 1:10 over time.
R 11 - True for any program.
R 13 - Also a problem with changes in program office for ILS money changed to hardware money. This also affects the schdeule of a program.
R 18 - If funding accomplished early, a program may not happen because cost perceived as too high. If funding late, it will get negative attention. Catch 22.

27. JSAPs experience problems with the interservice transfer of funds due to inadequate procedures?

R 7 - Believes service parochialism contributes to problems with the interservice transfer of funds.
R 11 - These problems are symptoms of attitude problems.
R 13 - Problem with timeliness for obligation and dispursement.
R 22 - There are problems but they are not procedural.
R 25 - Thinks that billing from the contractor to the Navy to the Air Force is too slow.
R 29 - Problems occur in the accounting process for expenditures and obligations.
R 47 - The services are the problem, not the procedures.

28. Problems occur with the transfer of funds on the Military Interdepartmental Purchase Request (MIPR)?

R 11 - These are symptoms of an attitude problem.
R 20 - A problem if not managed properly. Must be followed up.

R 29 - Problems occur in the accounting process for expenditures and obligations.

29. Discontinuance of service involvement (cancellation of orders) is costly to the executive service without adequate provisions for the cancellation.

R 10 - Does not apply only to the JSAPs.
R 68 - Applies to end items (agrees), not spares (disagrees).

30. Cancellation clauses do not exist in contracts to cover discontinued service involvement.

R 11 - Use of this clause prohibits vendor termination costs.
R 42 - A problem if there are not pre-agreed arrangements.
R 90 - Agreements should be firmer and more specific in contracts.

31. Funding category differences between services create problems for transferring funds and purchase and support of equipment.

R 18 - Navy has very complex funding categories.
R 35 - Problem with getting funds to the Army.

32. Resolving interservice problems at lower mangement levels (i.e., DPML level) is difficult.

R 6 - Problems referred to the Under Secretary of Defense due to inability to resolve differences.
R 18 - Resolving differences easy at the working level.
R 22 - People solve problems if they can, but problems go higher due to their joint nature.
R 95 - Parochial/political problems elevated.

33. JSAP problems are frequently referred to higher headquarters for resolution.

R 6 - Feels that problems should be referred to higher headquarters more often.
R 8 - Agrees 10% of the time, disagrees 50% of the time, that problems are "frequently" referred to higher headquarters for resolution.
R 18 - Problems referred too high too fast.
R 22 - People solve problems if they can, but problems go higher due to their joint nature.

34. Do you experience any additional major ILS problems for JSAPs not mentioned in this interview survey?

R 6 - Question 32. Problems referred to the Under Secretary of Defense due to inability to resolve differences.

R 8 - Even with common equipment, different support requirements create difficulties in reaching an appropriate compromise (i.e., shipboard repair versus depot repair).

R 10 - Multiservice manning. People from other services work those issues of manning and evaluation. Very time consuming to write their evaluation reports.

R 14 - Squabbling between service logistics agencies. Initial planning is extremely important.

R 17 - Too much emphasis on buying system without logistics support.

R 18 - Conflict in standards between services for ILS.

R 20 - a. Budgets. Differing program priorities between services.
b. Inter/intraservice rivalry. If one service has expertise in an area, the other service has a hard time getting started.

R 22 - Hardware. Production service has to provide logistics to other service(s), therefore, the lead service doesn't fund production support adequately. For similar but different systems this causes problems. Support concepts and requirements are very different between services.
General problems. ILS requires very broad experience which is difficult to get. Workers tend to be supply people. It is essential to have more technical/financial/planning expertise in a logistics office.

R 29 - Withdrawal from a program by a service late in the program.

R 35 - Interpretation of service philosophies. No MIL-STD.

R 36 - The learning curve for the DPML with full joint responsibility is not steep. Lacks the requirement to understand and work within two service logistics communities. Assuring both services that personnel of either service in the Joint Program Office are genuinely concerned and responsible for issues of both services is very difficult.

R 44 - Getting agreement on operational requirements due to service differences.

R 47 - No continuity due to no or few co-located resources.

R 49 - Worldwide coordination.

R 54 - Coordination time is excessive. Authority to commit resources is usually lacking during interchange meetings.

R 57 - Obtaining a detailed operational scenario.

R 58 - Different structure of Air Force/Navy acquisition logistics organization.

R 59 - Obtaining assets and enforcing the contract.

R 61 - Prime contractors appear amused at lack of service standardization and the conflict generated between services. A common language is needed. The contractor translates time to dollars. They thrive on government inefficiency.

R 62 - a. Getting a competitive technical data package.
b. Acquisition plan, development plan, ILSP, PMRT plan, JLSP. Too many plans.

R 66 - Lack of program direction.

R 68 - a. Lead service not providing timely contractor support for SICA services.
b. Conflict in prioritization of requirements.
c. Lead service providing adequate support for spares at provisioning.
R 69 - Definition of maintenance concept.
R 73 - Different maintenance levels cause test equipment and training differences/problems.
R 75 - Problem implementing as a secondary service. Can't levy logistics support analysis requirements easily on the FAA.
R 78 - Difference in coding and repair concepts between services.
R 87 - When Army is the executive service they write their own requirements into the JLSP with own interests in mind. Must consider own inputs.
R 90 - Interpretation of long-term support requirements.
R102 - Different maintenance levels and procedures.

35. What do you consider to be the major ILS problem for JSAPs?

R 1 - Lack of qualified personnel with adequate knowledge of multiservice logistics.
R 3 - Enforcement of adherence to regulations.
R 4 - Question 29.
R 6 - Question 32.
R 7 - Question 7. Funding and stability.
R 8 - Differences in support posture between services.
R 9 - Different service methodologies for logistics support from parts counting to maintenance.
R 10 - Early identification of requirements. The same process as for single service requirements.
R 11 - Requirements come first. To start a program without requirements is the biggest problem.
R 13 - a. Inadequate requirements determination early in a program.
b. Timeliness of funding to meet requirements.
R 15 - Configuration changes.
R 16 - Maintaining a committment on funding by services.
R 18 - Service incompatabilities in designs.
R 20 - a. A traditional SPO director deals more with making the system work than supporting it.
b. Difficult to change services' way of doing business (i.e., Navy, Air Force).
c. Who got there first doesn't change or give up expertise.
d. If ILS is delayed or ignored until late in a program there is not enough money to buy support equipment, etc., that is needed.
R 22 - Air Force strives for worldwide standardization. Army thinks/strives for theatre standardization/compatability. Navy thinks/strives for theatre standardization/ compatability. These differences result in incompatability and awkward management.

R 24 - Differing maintenance concepts between services.
R 25 - Different maintenance concepts between services.
R 26 - Program stability and funding.
R 29 - Interservice procedures for spares.
R 34 - Maintenance Planning.
R 35 - Source Maintenance Recoverability (SMR) coding at different levels. Air Force has no access because of different coding.
R 36 - Service parochialism.
R 38 - Services' differences and logistics issues lead to hybrid problems. Problems also due to compromises.
R 40 - Depot decision process.
R 41 - PICA support of participating service.
R 42 - Base logistics support for different systems.
R 44 - Provisioning.
R 46 - Question 33. Referring problems to higher headquarters.
R 47 - Coordination and communication. Decisions sometimes made too late.
R 48 - Different maintenance levels.
R 49 - Question 34. Worldwide coordination.
R 50 - Coordination of different procedures.
R 51 - Different maintenance concepts.
R 52 - Coordination.
R 53 - Timely communications between services.
R 54 - Documentation requirements.
R 55 - Technical data.
R 56 - Agreeing to a JLSP with regard to requirements and overall planning and support for services.
R 57 - Different operational requirements between services.
R 58 - Different structure causes problems getting appropriate elements/offices to work together.
R 59 - Obtaining assets.
R 60 - Maintenance planning.
R 61 - Lack of common language/terms and enforceable regulations.
R 63 - Funding stability and the same color of money.
R 64 - Terminology and methods.
R 65 - Lack of planning and budgeting is the major contributor to problems.
R 66 - Technical Orders and provisioning.
R 67 - The lack of similar direction between services.
R 69 - a. Definition of maintenance concept.
b. Funding.
R 70 - Funding with the Army. The Air Force has money, the Army doesn't.
R 72 - Unilateral assumption of contract changes. Inability to communicate changes. Sometimes Army does not accept changes.
R 73 - Training requirements are at a higher level in the Air Force.
R 74 - The transfer of funds between services. Air Force initiated (getting on contract) is the largest problem.

R 75 - Determining the maintenance concept for a program.
R 77 - a. Technical Order development due to different maintenance philosophies/levels.
b. Funding spares for PICA designated service.
R 78 - Getting information on elements not performed by the DPML office (i.e., support equipment/training).
R 79 - Supply support.
R 80 - Responsiveness.
R 82 - Different maintenance concepts, supply procedures, regulations.
R 83 - Coordinating requirements and methods of applying them.
R 84 - Agreement on accommodation of other service requirements.
R 85 - The way services do their own business. No commonality.
R 86 - The SPO doesn't address potential JSAP problems early enough. Should be a Critical Design Review action item.
R 87 - Lack of communication between ILS managers and services.
R 88 - Support planning with no joint integrated SPO. No service representatives co-located makes planning by phone and TDY costly and inefficient.
R 89 - Buying spares.
R 90 - a. Communication.
b. Documenting costs.
R 92 - Identification and communication of requirements.
R 94 - Question 29. Discontinued involvement.
R 95 - When the Air Force is not the lead service there are different requirements/concepts that create problems.
R 97 - Understanding and cooperation.
R 98 - Different procedures, difficulty with communication.
R 99 - Funding, at intermediate maintenance level no procedure to transfer drom depot level to intermediate level.
R100 - Funding ILS early.
R101 - Funding category differences.
R102 - Different spares, initial ordering and stocking between services.

37. Problems result when the System Program Manager(s) (AFLC representatives from the ALCs) is/are underrepresentd with technical support at provisioning conferences.

R 13 - Question applies to each service.

40. Accurate and timely documentation of provisioning meetings are not routinely available to all participants.

R 68 - Could be better documentation. Some is excellent.

41. SPMs are generally unaware of detailed operational level information pertaining to JSAPs.

R 6 - Believes SPM should be knowledgeable only from a practical standpoint.

R 67 - Disagrees when Air Force is the PICA. Agrees when Air Force is the SICA.

42. Different levels of maintenance and repair between services create problems with technical order availability and development.

R 6 - Considers spares and provisioning problems associated with different maintenance levels.
R 11 - These problems can be worked.
R 25 - Proper planning needed in advance to deal with these issues.

43. Resolving contractor repair versus organic repair capabilities and arrangements between services creates problems.

R 10 - Issue not unique to JSAPs.
R 29 - Creates "funding" problems.
R 68 - This should be transparent to the user.

44. Lack of contingency planning for interim contractor repair creates support problems.

R 10 - Agrees with statement if no contingency planning is made.
R 11 - Interim contractor repair is often forced on a program office.
R 13 - This is not on a contingency basis for the Army.
R 22 - Long lead times force this. A problem with late money.

45. Configuration management documentation for JSAPs is often inaccurate.

R 22 - Joint programs are harder to configuration control because of greater incompatability. This is not due to lack of awareness and attention.
R 29 - Believes Air Force configuration management better than other services.
R102 - Not just a joint issue.

46. Documenting interchangeable parts for joint systems is neither timely nor accurate.

R 6 - Prefers word "cataloguing" to "documenting."

47. Repair time and system down time increase when configuration management is lacking.

R 8 - Believes this question is a true statement.
R 11 - May not need this question - obvious.
R 28 - Agrees with statement in the outyears and over the full life of the system, but not a problem initially.

48. Inventory control procedures between services are inadequate and confusing.

R 85 - Not inadequate but definitely confusing.
R 92 - Accomplished on the joint service system maintenance plan.

49. Support agreements are generally unclear between PICAs/SICAs and users.

R 6 - Considers relationship between PICAs and SICAs unclear.
R 11 - Considers support agreements generally late versus unclear.
R 22 - Believes "executing" support agreements is the problem.
R 35 - Either no agreement or can't get agreement at a high enough level.
R102 - Unclear for first five drafts of document.

50. Depot Maintenance Source of Repair agreements (for your program(s)) are generally unclear.

R 2 - Agreements considered to be generally late instead of unclear.
R 7 - Thinks agreements take too long to accomplish.
R 22 - Thinks "executing" source of repair agreements is the problem.
R 51 - Thinks organic is good. Contracts not as good.

51. Assigning special stock numbers for different services' equipment is difficult and ineffectual once accomplished.

R 13 - Army uses all National Stock Numbers (NSNs).
R 68 - All services use the same system but the SICA may not register properly.
R 92 - Stock numbers are tailored for programs.

52. Problems occur when stock numbers are not assigned early in the program to meet multiservice requisition and support needs.

R 10 - Problems with stock numbers may or may not occur depending on production phasing and Initial Operational Capability (IOC) date.
R 18 - Stock numbers not a problem when first assigned but is later a problem for the users.

53. Differences in the supply systems of each service create delays in ordering, shipping and maintaining parts and equipment.

R 7 - Delays due to perceptions and parochialism.
R 13 - Problems occur within the system of each service.

54. Cost reimbursement procedures between services are not adequately clarified at provisioning.

R 67 - Provisioning is not the forum for clarifying cost reimbursement procedures. Done before provisioning occurs.
R 87 - Should do this before provisioning.

55. Spare parts are generally not funded early in a program.

R 6 - Thinks spare parts generally not "identified" early in a program.
R 18 - Spares are sometimes funded too early.
R 27 - Considers this a bad question.
R 28 - Believes spares are better funded in JSAPs than regular programs.
R 35 - True as a rule but not always.
R 68 - Should project early but not spend until production.

56. Total system support costs are increased when early and full use of warranty coverage is not utilized.

R 6 - States confusion exists over what is/is not warranteed.
R 22 - When intent of warranties is examined they can't be demonstrated until IOC or later when fielded. Coverage contracts must be included early and not used until later. Multiple contracts must sometimes be amended. This results in inadequate warranties. This is not a problem unique to joint programs, just more difficult.
R 27 - Considers this a bad question.

57. Problems occur is the contract does not specify special arrangements between organic and/or third party maintenance sources with the system guarantor.

R 68 - The lead service has the responsibility for all repairs.

58. Schedules do not reflect different lead times created by differing staff processes of other services.

R 87 - The executive service should be the lead on schedules.

60. Unique support requirements for C-E systems create ongoing O&S problems.

R 67 - Unique support requirements are not limited to C-E systems.
R 69 - Not sure requirements for C-E systems are unique.

61. There is little commonality of parts between operationally "identical" C-E systems due to inadequately documented field repairs and changes.

R 68 - Field repairs are accomplished per existing documentation.

62. Maintenance for C-E systems is difficult and costly due to special support requirements and system differences.

R 68 - Depends on the type of mission scenario.
R 87 - Due to overdesign of the system.
R 95 - Agrees on "support requirements," not "differences."

63. What do you consider the major O&S problem to be for JSAPs?

R 1 - Cataloguing spares.
R 2 - Changing requirements by user after prior agreements made.
R 7 - a. Consistent funding.
b. PICA/SICA relationships.
R 8 - Reaching agreement on requirements and variables.
R 9 - a. Configuration management for different service systems.
b. Operations and Maintenance (O&M) concepts.
R 10 - Inadequate support funding.
R 11 - Continuing evaluation of systems and engineering change proposals (ECPs) from the field.
R 12 - Support arrangements for depot level support.
R 14 - Demonstrating to the user operational capabilities. Contractor problems with demonstration.
R 15 - Documentation to support systems. Impacts spares and repair of systems.
R 17 - Follow-on support.
R 18 - Dispersion of requirements.
R 20 - In the beginning agreements on service O&S requirements is the major problem. Requirements change due to safety or operational requirements.
R 21 - Spares and support equipment bought late.
R 22 - Maintaining effective control of configuration management and funding.
R 24 - Maintenance concepts and supply systems.
R 25 - Different Air Force and Navy maintenance approaches and concepts.
R 26 - Lack of a proper ILS system and common perspectives between services.
R 27 - a. Software.
b. How to manage JSAPs.
c. Who is needed to manage JSAPs.
R 29 - a. Operational requirements are a "one size fits all box" syndrome.
b. Spare parts.
R 32 - Maintenance.
R 34 - Maintenance planning.
R 35 - Lack of agreement at intermediate level for services.
R 36 - Fully defining and integrating both services' requirements so that both communities' issues are answered.
R 37 - Funding and long lead time.
R 38 - Don't have foresight early enough for O&S issues. Crystal ball planning.

R 41 - Executive service providing timely support.
R 42 - Different logistics management procedures between services.
R 43 - Air Force lead time for test equipment procurement too long.
R 47 - Early funding (lack of).
R 48 - Management assignments for inexperienced personnel.
R 52 - Different rules between services for training.
R 54 - Turn-around time for repairables.
R 57 - Different support concepts between services.
R 59 - The Navy has all the money they need and the Air Force doesn't.
R 61 - Individual services have own ways of doing business. They can/will not change established procedures.
R 63 - Spares funding.
R 65 - Lack of early planning and agreements to support a system.
R 67 - Getting information for the appropriate time to field a system, and to readjust schedules due to slippages.
R 69 - Maintenance.
R 70 - O&S problems created by different levels of maintenance.
R 72 - Initial spares acquisition effort. Army spares buying lags behind Air Force's.
R 73 - Depot repair.
R 74 - Different maintenance concepts/levels of maintenance between Army and Air Force.
R 75 - Depot Maintenance Interservice Support Agreements (DMISAs) - confusion over items and agreements hard to clarify/resolve.
R 77 - Cost of repair.
R 79 - *Updating configuration changes* to commercial off-the-shelf equipment.
R 82 - Different technical order formats and maintenance levels.
R 83 - Different maintenance levels.
R 84 - Different operation and maintenance concepts.
R 85 - Lack of standard documentation. Interpretation problems before the second year of operation.
R 87 - Spares are a problem associated with the Initial Supply Support Lists (ISSLs).
R 88 - Establishment of a well understood joint operating agreement.
R 90 - Funds for Technical Orders. Early planning for funding required.
R 92 - Developing a coordinated joint service plan to manage program.
R 95 - Changing technology and different maintenance concepts.
R 99 - ALCs do not use analytical tools to evaluate provisioning and education.
R100 - a. Complexity of systems.
b. Expertise lacking.
c. Documentation becomes difficult.
R101 - Question 62. Maintenance for C-E systems difficult/costly.
R102 - For common parts - using other service's supply system - PICA/SICA relationship.

64. What major O&S problem(s) exist for JSAPs that are not mentioned in this survey?

R 1 - Funding for spares.
R 4 - Major problems are managerial and not technical. Some problems are not solely caused by different operational requirements of each service.
R 7 - a. Technical data differences.
b. Technical Order distribution.
c. Software problems in design differences for TRITAC program.
R 13 - a. Early planning, requirements and funding.
b. Integrity of the system and changes late in the program.
R 14 - Demonstration, performance, reliability and maintainability.
R 17 - Differing maintenance concepts of different services.
R 20 - Budget, procurement, quantity/dollars, increasing total program cost. When budget is cut too soon, must pay more later.
R 27 - Question 63.
a. Software.
b. How to manage a JSAP.
c. Control of a program.
d. Operational requirements determination.
R 28 - Different operational concepts.
R 31 - Sensitive Compartmental Information (SCI) and collateral enclave. Security issues across service line are different.
R 35 - Training.
R 37 - a. Late delivery.
b. Technical data.
c. Contract delinquency.
R 43 - a. Different maintenance levels.
b. Different levels of expertise. A maintenance concept results based on the level of the personnel.
R 48 - Low initial production rates are costly in the long run. No guidance exists for determining economical production rates. Costly to amend contracts.
R 59 - a. Problems occur when one service has contractor repair and the other has organic repair.
b. Different nomenclature causes configuration management problems.
R 61 - Question 63. Individual services have own ways of doing business. They can/will not change established procedures.
R 66 - Life cycle surveillance testing requirements. Different testing between service creates problems with performance testing and confidence levels for equipment.
R 68 - a. Support equipment and technical orders.
b. Software support confusing.
R 74 - Initial Supply Support List (ISSL) not available. Reflects back to Army and MIPR problems.
R 84 - Question 63. Different operation and maintenance concepts.

R 86 - Rescission of early agreements late in a program very costly.
R 95 - Lack of interface with real users. Must deal with HQ/AFCC and Tactical Communication Division who in turn deals with combat communications groups (users). Too much paper interfacing. Many people work joint programs at ESD without operational or any experience.
R101 - Maintenance concepts and philosophies.

65. Is ALMIS being used as a data base to specify applicable program guidance used for management of JSAPs?

R 27 - Used somewhat for this purpose.

69. Is ALMIS being used for this purpose?

R 7 - Being used poorly to monitor program funding.
R 27 - About 10% ultilization at present for this purpose.
R 70 - Being used to "identify" not "monitor" program funding.
R 75 - For Air Force funds only.

70. Should ALMIS be used for this purpose?

R 75 - For Air Force funds only.

73. Is ALMIS being used to monitor contractor performance of specific contract deliverables, including cancellation clauses?

R 7 - ALMIS used in a limited capacity for contractor performance on deliverables. Says this is a SPO responsibility.
R 92 - Agrees to monitor contractor performance.

74. Should ALMIS be used for this purpose?

R 7 - Says is a SPO responsibility to monitor contractor performance but agrees ALMIS should be used for this purpose.

81. Is ALMIS being used to document minutes of proceedings from provisioning and planning conferences?

R 35 - Too much input, let's get serious.
R 92 - Considers milestones are critical to document.

82. Should ALMIS be used for this purpose?

R 7 - ALMIS should show general results from provisioning meetings.
R 35 - Too much input, let's get serious.
R 92 - Considers milestones are critical to document.

83. Is ALMIS being used for system configuration management including documentation of part control numbers?

R 35 - Already in place on another system.

84. Should ALMIS be used for this purpose?

R 7 - Believes configuration management is too detailed a job for ALMIS.
R 35 - Already in place on another system.

91. Is ALMIS being used to monitor warranties?

R 7 - ALMIS used in a limited/non-specific manner to monitor warranties.

93. Is ALMIS being used to maintain schedules which monitor lead times and staffing processes between services?

R 35 - May already be on the Computer Supported Network Analysis System (CSNAS).

94. Should ALMIS be used for this purpose?

R 35 - May already be on the Computer Supported Network Analysis System (CSNAS).

95. Are there any current or potential applications of ALMIS for JSAP management that have not been mentioned in this survey?

R 7 - Should use ALMIS for:
a. Depot Maintenance Interservicing (DMI).
b. Logistics Support Analysis (LSA).
c. Interface with other computer resources through software.
d. Management and monitoring of program status such as:
* People files.
* Product files.
* Manning level requirements.
* Training needs.

R 18 - ALMIS is a one way tool for some managers. System users can best answer questions. As a developer, respondent would not want to sub-optimize a system design for micro-management of R&D systems.

R 27 - ALMIS should be used more for notification and documentation of critical events and major milestones including:
a. AFSARCS.
b. DSARCS.
c. Provisioning conferences/events.
d. Other critical events.

R 35 - Manpower is a problem to support ALMIS as it is currently configured.

R 36 - Major problem - When ALMIS becomes an end unto itself, its usefulness is suspect at best. Documenting problems does not solve them and seldom gets the attention of those with the leverage/authority to change/help the situation.

R 45 - A problem with keeping ALMIS accurately updated.

R 47 - ALMIS must also be a top-down vehicle for lower management.

R 48 - ALMIS is a management tool. Should be used to address upper management issues. Should not be used for specific issues at lower levels. Could include:
a. Plans status and inputs into JLSP.
b. Depot activation status.
c. Program management plan status.

R 49 - ALMIS is becoming a mini-ILSP. Should be used beneficially for scheduling. Everyone should know about ALMIS and where to go for information on a program.

R 58 - ALMIS viewed as a status information report for higher headquarters. They use it to ascertain various program's status. The current use is exclusively for the Air Force. Not considered a DPML's management tool. Used for one way reporting up the chain.

R 61 - Does not believe ALMIS should be allowed to be everything for everyone. ALMIS is currently manageable. Too much information included, should be limited to address current funding positions, major milestones and concerns. More capabilities require more work to update.

R 62 - ALMIS should be used for logistics assessment of logistics problems. Should not burden ALMIS with many additional capabilities that would have a negative effect on the users.

R 64 - For electronic warfare systems file security is essential. Think security and COMSEC.

R 66 - Would like to see ALMIS more capable of supporting operational level workers/details at the Air Logistics Centers (ALCs).

R 69 - ALMIS should be used primarily for program reporting to higher headquarters. It is not used for controlling the big picture. Separate systems could do this. Should macro-manage ILS elements with ALMIS, not micro-manage them. A micro-management system should be linked into ALMIS.

R 70 - Too much unusable information already on ALMIS. No actual costs are documented, only someone's best guess.

R 72 - ALMIS is already overworked/overrated. If management used the system it would be good. They should follow-up by phone when problems are identified on ALMIS.

R 73 - So much data is very time consuming to input. This may not be the original intent of this system.

R 75 - File security issue - Too many people access the ALMIS database that users don't know. Information is filtered and screened so that the situation doesn't appear negative.

Telling the truth creates more work, ALMIS ought to be used more as an internal management tool.

R 76 - Would like to see increased ALC involvement.

R 77 - The special interest item of the day goes into ALMIS. This is not necessarily a DPML controllable issue. For reporting, it is not clear who upper managers want to fill out reports. The DPML scrambles for information from other offices. When information changes, the DPML scrambles and spends a lot of time keeping database current. Too much time spent on the computer in a basket SPO. ALMIS is a big information system but no one works the problems.

R 78 - Potential logistics support analysis applications. Depot maintenance interservicing is currently a system capability/ application.

R 79 - More information on the ALMIS would be beneficial.

R 83 - Could be a two-way system instead of a one-way up-channel reporting system. Desire an electronic mail capability between all system users/interfaces.

R 84 - ALMIS is a good tool for AFALC, but limited value for the user. Timely notification of events for status desired/needed.

R 87 - Required to put information into ALMIS that is not used by and is not what upper management really wants to know. Not sure what the upper management really wants to know. Inaccurate information input as a result.

R 90 - ALMIS is for overall management, not for specifics. A problem with specifics for measurement purposes.

R 92 - Desires a direct line of communication to upper management through a communications network.

R 98 - Intensely dislikes ALMIS. Forced to update, then ALMIS is used as a hammer. ALMIS does not relate to his job. Respondent invents data. Should develop a system to do useful tasks desired by and useful to all managers. Green/yellow/red parameters are meaningless at lower management levels. Dislikes that he has to keep feeding the monster.

R101 - a. System has one inputter and many accessors. More effective if increased involvement from PEMs, SYSTOs, SPMs, etc.
b. Two-way communications would improve system.
c. Access to ALC database and personnel desirable.
d. Access to funding database at headquarters desirable.

General Comments:

R 54 - If the terms "Interservice, Joint Service," and "JSAPs" are removed, these issues apply to all acquisitions. The same general issues can be answered the same way for single service acquisitions.

R103 - He respresented senior Air Force management and offered the following qualitative opinions concerning JSAPs.
JSAPs are often forced upon the services from above (Joint Chiefs of Staff and above) without proper analysis and understanding of the operational requirements of the JSAP participants. Many JSAPs encounter difficulty and problems due to the fact that different services have different requirements but nevertheless are forced into a JSAP. This in turn often leads to one or more of the services discontinuing with the program because the system is not what they require. This also creates an "attitude" that JSAPs don't accomplish what they're intended to.
Another issue raised was the need for an upper level management information system for JSAPs. Managers across service lines must have access to information and decision making tools in order to decrease and alleviate many of the management problems encountered with JSAPs. "This type of system would drastically improve JSAP management, and I think it is absolutely essential that one be implemented in the future."

Appendix H: Terms and Acronyms

ADPE = Automatic Data Processing Equipment

ADUS = Avionics Data Utilization System

AF = Air Force

AFALC = Air Force Acquisition Logistics Center

AFCEA = Armed Forces Communications-Electronics Association

AFIT = Air Force Institute of Technology

AFLC = Air Force Logistics Command

AFLCM = Air Force Logistics Command Manual

AFLCR = Air Force Logistics Command Regulation

AFR = Air Force Regulation

AFSC = Air Force Systems Command, also Air Force Specialty Code

AFSCR = Air Force Systems Command Regulation

ALC = Air Logistics Center

ALMIS = Acquisition Logistics Management Information System

ASD = Aeronautical Systems Division

ATC = Air Training Command

C^2 = Command and Control

C^3 = Command and Control Communications

C-E = Communications-Electronics

CECOM = U.S. Army Communications-Electronics Command

COBOL = Common Business Oriented Language

CSNAS = Computer Supported Network Analysis System

DARCOM = U.S. Army Development and Readiness Command

DEC = Digital Equipment Corporation

DMISA = Depot Maintenance Interservice Agreement

DOD = Department of Defense

DODD = Department of Defense Directive

DODI = Department of Defense Instruction

DPML = Deputy Program Manager for Logistics

EA = Executive Agent

ESD = Electronic Systems Division

FORTRAN = Formula Translation

ILS = Integrated Logistics Support

ILSO = Integrated Logistics Support Office

ILSM = Integrated Logistics Support Manager

ILSP = Integrated Logistics Support Plan

JLC = Joint Logistics Commanders

JLSP = Joint Logistics Support Plan

JPCG = Joint Policy Coordinating Group

JPO = Joint Program Office

JSAP = Joint Service Acquisition Program

LCC = Life Cycle Cost

MCOP = Marine Corps Operating Pamphlet

MIPR = Military Interdepartmental Purchase Request

MIS = Management Information System

M^3 = Meaningful Measures of Merit

MOA = Memorandum of Agreement

MTTR = Mean Time To Repair

NAVMAT = Naval Material Command

NAVMATINST = Naval Material Command Instruction

O&S = Operations and Support

PAR = Program Assessment Review

PCP = Parts Control Program

PICA = Primary Inventory Control Activity

PEM = Program Element Monitor

PM = Program Manager

PMRT = Program Management Responsibility Transfer

PPAC = Product Performance Agreement Center

SIASCN = Standard Interservice Agency Serial Control Number

SICA = Secondary Inventory Control Activity

SISMS = Standard Integrated Support Management System

SM-ALC = Sacramento Air Logistics Center

SPM = System Program Manager

SPO = System Program Office

SYSTO = Systems Staff Officer

USAF = U.S. Air Force

WATS = Wide Area Telephone System

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When more than one service is involved in the acquisition, development, operations and support of a Department of Defense program there is inherent difficulty reflected in program management. Management problems occur for many reasons, including different operational requirements and unique service procedures. Literature suggests that some management problems attributable to geographically dispersed resources, management personnel turnover and ineffective communications may be successfully overcome through implementation of a Management Information System (MIS). This thesis project was an effort to identify and validate the major Joint Service Acquisition Program (JSAP) problems and determine the current and potential use of the Acquisition Logistics Management Information System (ALMIS) to address them. Literature was surveyed and problems were summarized and developed into a questionnaire. Structured interviews were then conducted with over 100 different Air Force and civilian upper and middle JSAP managers. Many general and specific problems and issues were identified and validated using statistical and qualitative methods. General use of ALMIS to address certain joint service problem areas was confirmed. Potential use and desirable capabilities for ALMIS were also determined. Recommendations for ALMIS and a new MIS across service lines are also provided in this study.